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UNIVERSITY OF [illegible]

PROCEEDINGS

OF

5th Annual Alumni Week

OF THE

UNIVERSITY OF NEBRASKA

College of Medicine

OMAHA
OCTOBER 12th to 17th, 1914

PROCEEDINGS OF

Clinics, Conferences and Entertainments

Fifth Annual Alumni Clinical Week

OF THE

University of Nebraska, College of Medicine

Omaha, Nebraska

October 12th to 17th, 1914

Arrangement Committee.

W. H. Taylor, '11 J. B. Potts, '07, Chairman C. Rubendall, '08
J. C. Moore, Jr., '08 Charles Lieber, '08
W. N. Anderson, '10 R. A. Dodge, '01

Committeemen in Charge of Hospitals.

Immanuel Hospital—C. Rubendall
Methodist Hospital—J. C. Moore, Jr.
Wise Hospital—R. A. Dodge
Clarkson Hospital—W. N. Anderson
Douglas County Hospital—W. H. Taylor
Child Saving Institute—Chas. Lieber
Conference—W. N. Anderson

PUBLISHED UNDER DIRECTION OF

IRVING S. CUTTER, '10 W. P. WHERRY, '03 ROY A. DODGE, '01
Committee on Publication.

Programme

	MONDAY	TUESDAY	WEDNESDAY
8 to 12 A. M.	REGISTRATION University Club Board of Trade Bldg., 16th and Farnam	CLINIC Clarkson Hospital Dr. Findley Dr. Summers Dr. Crummer	CLINIC Methodist Hospital Dr. Jonas Dr. Bridges Dr. Gifford
12:30 to 1:30 P. M.	ROUND TABLE Luncheon Announcing Committees I. S. Trostler Chairman	ROUND TABLE Luncheon J. J. Hompes Chairman	ROUND TABLE Luncheon Annual Business Meeting A. R. Knode, Chairman
1:30 to 4 P. M.	CONFERENCE Means of Estimating a Child's Mentality Geo. Mogridge Early Diagnosis of Tuberculosis of Hip J. P. Lord Present Day Status of Gynecology Palmer Findley "Twilight Sleep" Palmer Findley A. B. Somers	CONFERENCE Discussion of Iritis H. Gifford Accessory Sinuses F. S. Owen Treatment of Otitis Media H. B. Lemere Hay Fever and Its Treatment W. P. Wherry E. T. Manning	CONFERENCE Gastric Ulcer Medical Aspects LeRoy Crummer Surgical Aspects J. E. Summers First Dressings in Fractures R. R. Hollister Therapy of Diseases of the Skin Alfred Schalek
5 to 6 P. M.	DISPENSARY Jacobs Hall Med.—Dr. Hall Sur —Dr. Hollister Skin—Dr. Dodge Ped.—Dr. Wigton Gyn.—Dr. Taylor Eye, Ear, Nose—Dr. Potts	DISPENSARY Jacobs Hall Med.—Dr. Hamilton Sur.—Dr. Nilsson Skin—Dr. Kennedy Ped.—Dr. Hamilton Gyn.—Dr. Fairchild Eye, Ear and Nose—Dr. Rubendall	DISPENSARY Jacobs Hall Med.—Dr. Bliss Sur.—Dr. Lieber Skin—Dr. Kennedy Ped.—Dr. Moore Gyn.—Dr. Pollard Eye, Ear, Nose—Dr. Lindquist
Evening	RECEPTION OF FACULTY TO ALUMNI 7:30 to 9:00 P. M. College Building 42nd and Dewey Ave. 9:30 P. M. Personal Experiences During European Trip A. F. Jonas	"AMERICAN-MONTE CARLO." Metropolitan Bowling Alleys 1518 Capitol Ave.	COLLEGE BUILDING Electro Cardiograph Demonstration A. E. Guenther Laboratory Demonstration A. A. Johnson Pharmacological Experiments J. D. Pilcher Arterio-Venous Anastomosis A. C. Stokes

Programme.

THURSDAY	FRIDAY	SATURDAY
CLINIC Wise Hospital Dr. Stokes	**CLINIC** Immanuel Hospital Dr. Owen Dr. Davis	**CLINIC** Douglas County Hospital Dr. Aikin Dr. Kennedy
Child Saving Institute Dr. McClanahan		
ROUND TABLE Luncheon A. A. Fricke Chairman	**ROUND TABLE** Luncheon J. H. Goodnough Chairman	
CONFERENCE Toxemia of Pregnancy A. B. Somers Neurasthenia J. M. Aikin Emergencies in Pediatrics H. M. McClanahan Internal Administration of Radium Emanation and Radium Salts W. H. Cameron	**CONFERENCE** Stone in Kidney and Ureter Diagnosis and Medical Treatment W. O. Bridges Surgery and After Treatment B. B. Davis X Ray Diagnosis C. H. Ballard Digitalis Therapy W. F. Milroy	
DISPENSARY Jacobs Hall Med.—Dr. Bridges Sur.—Dr. Hyde Skin—Dr. Dodge Ped.—Dr. Wigton Gyn.—Dr. Taylor Eye, Ear and Nose—Dr. Wherry	**DISPENSARY** Jacobs Hall Med.—Dr. Anderson Sur.—Dr. Kennedy Skin—Dr. Ballard Ped.—Dr. Moore Gyn.—Dr. Stastny Eye, Ear and Nose—Dr. Patton	
GRAND ANNUAL BANQUET University Club Toastmaster J. E. Olsson Guests Prof. Alfred C. Cotton Uni. of Ill. Samuel Avery Chancellor Uni. of Neb. W. H. Cameron Med. Dir. Radium Inst. Pittsburgh F. L. Haller Regent Uni. of Neb.	**CLASS AND FRATERNITY** **CELEBRATIONS**	

Ladies Programme

Monday Evening, 7:30, October 12th
Reception—College Building, 42nd and Dewey Avenue
Address, A. F. Jonas, M. D.

Tuesday, October 13th, 2:30 P. M.

Auto Ride—North Boulevard, Miller Park, Florence, visit Water Works, Fort Omaha, Bemis Park, Fair Acres, Elmwood Park, West Farnam District, South Boulevard and River View Park.

Tuesday Evening, 7:30, October 13th.
Theatre Party

Wednesday, October 14th, 2:30 P. M.
Lininger Art Gallery

Wednesday Evening, 7:30, October 14th
Theater Party—Orpheum

Thursday Evening, 6:30, October 15th
Annual Banquet and Dance
Ladies Especially Invited

Ladies Committee

Mrs. C. Rubendall, Chairman

Mrs. E. L. Bridges
Mrs. A. Jefferson
Mrs. W. H. Loechner
Mrs. E. R. Porter
Mrs. W. H. Taylor
Mrs. R. C. Gramlich
Mrs. B. W. Hall
Mrs. W. R. Lavender
Mrs. J. R. Nilsson
Mrs. F. L. Swoboda
Mrs. R. A. Dodge
Mrs. A. R. Knode
Mrs. C. C. Morison
Mrs. J. B. Potts
Mrs. W. P. Wherry
Mrs. B. W. Christie
Mrs. J. F. Hyde
Mrs. Chas. Lieber
Mrs. A. O. Peterson
Mrs. E. J. Undegraff
Mrs. A. W. Fitzsimons
Mrs. H. B. Lemere
Mrs. J. M. Patton
Mrs. S. H. Smith
Mrs. H. A. Wigton
Mrs. E. B. Erskine
Mrs. C. R. Kennedy
Mrs. Clyde Moore
Mrs. A. C. Stokes
Mrs. E. A. Van Fleet

PREFACE.

We hand you herewith a report of the transactions of the Fifth Annual Alumni Week.

As committee on arrangements we feel highly gratified with the success both medically and socially, and sincerely appreciate the co-operation of both the visitors and the Omaha Alumni.

To those who participated, we express our thanks and appreciation. Especially to the University Club through its excellent manager, do we as a committee wish to express our thanks. The University Club with its excellent facilities for entertaining was an ideal headquarters. And truly did it belong to the Alumni of the University of Nebraska, College of Medicine, during this week.

To the Alumni who accepted our invitation and were our guests, we hope you received enough both scientifically and socially to repay you for your loss of time and the journey you made to come to Omaha, and that you will write your classmates of the good times you had during this week.

The committee having in charge these annual events is at all times willing and eager to receive suggestions. If there are any special departments you wish worked into the conference or clinical program for next year, kindly write the secretary a letter, expressing these suggestions and the committee will attempt if possible to carry out your wishes.

Let every Alumnus boost for the Annual Alumni Week and the University of Nebraska, College of Medicine.

Committee:
J. B. POTTS, '04.
J. C. MOORE, JR., '08.
CHARLES LIEBER, '08.
W. N. ANDERSON, '10.
R. A. DODGE, '01.
W. H. TAYLOR, '11.
C. RUBENDALL, '08.

FOREWORD.

The close of the Fifth Annual Alumni Clinical Week has marked a decided step forward in the organization and usefulness of the Alumni Association of the College of Medicine, University of Nebraska. Under the able administration of Dr. Knode, '04, assisted by a most efficient local committee, not only were the plans for the clinical week arranged and carried out most satisfactorily, but the association was active in many ways in their local communities and was able to keep in touch with the college as never before.

I highly appreciate the honor you have conferred upon me, and hope during the coming year to carry on the good work already accomplished, especially along the lines of bringing the association and the active work of the college in closer relation. Members of the association can be of great assistance in at least two definite lines; first, in using their influence, through their senators and representatives, to secure such legislation as will be helpful to the college; and second, by being ever on the watch to induce bright young men in their communities who are planning to take medical work, to affiliate with the University of Nebraska.

As president, I will gladly welcome any suggestions which may be for the upbuilding of the strength and usefulness of the association, and look forward to a most enthusiastic and profitable reunion next fall.

JAMES M. PATTON, '04, President.

OFFICERS.

President	Jas. M. Patton, '04
First Vice-President	C. S. James, '99
Second Vice-President	James Bisgard, '94
Secretary-Treasurer	R. A. Dodge, '01
Council	A. R. Knode, '04 W. P. Wherry, '03 A. C. Stokes, '99 W. R. Lavender, '90

Editorial Board: I. S. Cutter, '10; W. P. Wherry, '03; R. A. Dodge, '01.

Legislative Committee: A. C. Stokes, '99; B. W. Christy, '02; C. W. M. Poynter, '02.

Clinic Week Arrangement: One Year—W. N. Anderson, '10; Chas. Lieber, '08. Two years—C. Rubendall, '08; W. H. Taylor, '11. Three Years—A. A. Fricke, 08; J. F. Hyde, '07.

CLASS SECRETARIES.

1882—F. D. Haldeman,
1883—H. A. Leisering,
1884—M. O. Rickets,
1885—E. Leo Waterman,
1886—H. G. Wiese,
1887—J. W. Franzier,
188—T. P. Livingston,
1890—W. R. Lavender,
1891—A. Johnson,
1892—A. J. Baker,
1893—J. F. Davies,
1894—R. B. Armstrong,
1895—A. P. Fitzsimmons,
1896—E. L. Bridges,
1897—C. F. Dietz,
1898—H. B. Lemere,
1899—G. L. Strader,
1900—G. W. Bartlett,
1901—S. G. Allen,
1902—P. E. James,
1903—F. L. Beck,
1904—I. S. Trostler,
1905—A. E. Lane,
1906—Claud Palmer,
1907—J. F. Allen,
1908—L. T. Sidwell,
1909—R. C. Christie,
1910—J. E. Olsson,
191—F. A. Burnham,
1912—J. C. Tucker,
1913—A. Westervelt,
1914—H. Burns.

REGISTRATION.
Fifth Annual Alumni Week.

I. S. Trostler, '04
R. A. Dodge, '01
A. E. Lane, '05
B. F. Jeffers, '05
H. J. McArthur, '04
J. M. Woodward, '07
H. W. Francis, '98
J. E. Meisenbach, '04
Jos. Kohout, '05
E. A. Van Fleet, '02
E. J. Updegraff, '99
C. S. James, '99
A. B. Lindquist, '01
A. R. Knode, '04
Frank Jensen, '03
B. W. Hall, '01
Geo. Mogridge, '94
C. Rubendall, '08
A. E. Westervelt, '13
H. D. Burns, '14
H. B. Lemere, '98
B. W. Christie, '02
E. L. Bridges, '96
L. W. Edwards, '93
J. M. Patton, '04
J. B. Potts, '07
Clyde Moore, '08
F. W. Johnson, '94
W. P. Wherry, '03
Frank Tornholm, '02
W. N. Anderson, '10
G. R. Gilbert, '96
F. H. Hanson, '02
O. H. Margaret, '00
C. F. Moon, '14
R. C. Gramlich, '14
W. H. Taylor, '11
T. E. Sample, '04
Mary L. Tinley, '95
R. B. Armstrong, '94
A. O. Peterson, '99
H. A. Wigton, '05
M. A. Nye, '04
J. H. Kerr, '04
O. W. Wyatt, '09
C. W. M. Poynter, '02
I. S. Cutter, '10
A. C. Stokes, '99
Chas. Lieber, '08
A. W. Fitzsimons, '02
J. R. Nilsson, '01
B. A. Young, '14
J. F. Hyde, '07
Chas. Harmis, '14
C. R. Kennedy, '05
R. J. Murdock, '98
G. H. Rathbun, '02
J. Bisgard, '94
S. A. Preston, '00
J. F. Bening, '04
F. A. Burnham, '11
F. W. Scott, '10
Herman Bocken, '11
Geo Buel, '10
W. L. Hummer, '04
C. C. Morison, '03
J. J. Hompes, '08
J. C. Decker, '04
H. O. Munson, '95
G. B. Potter, '05
L. W. Morsman, '06
C. D. Eby, '04
W. C. Moodie, '12
C. F. Morsman, '02
J. H. Goodnough, '14
G. A. Alliband, '04
W. S. Reiley, '95
J. B. Redfield, '08
W. R. Lavender, '90
G. E. McDonald, '05
G. A. Morrison, '05
J. D. Reid, '02
L. T. Sidwell, '08
F. E. Osborn, '03
R. C. Panter, '04
H. G. Penner, '04
J. C. Waddell, '10
R. J. Stearns, '10
C. L. LeMar, '03
S. H. Smith, '98
M. P. Sward, '11
C. F. Dietz, '97
Wm. Kerr, '02
F. D. Burgess, '88
Olga Stastny, '13
H. C. Pedersen, '05
M. A. Tinley, '02
A. P. Overgaard, '00
W. H. Heine, '05
H. G. Morris, '05
Jno. Buis, '07
A. Johnson, '90
I. L. Thompson, '08
G. I. Sellon, '12
M. B. Wyatt, '07
A. C. Rumery, '05
A. Jefferson, '00
H. R. Carson, '10
A. L. Bartlett, '03
G. W. Bartlett, '00
I. D. Jones, '95
H. D. Brothers, '83
F. L. Beck, '03
E. B. Erskine, '14
A. A. Fricke, '08
W. A. Rush, '12
F. E. Kraft, '97
Edgar Christy, '07

MONDAY NOONDAY LUNCHEON.

I. S. Trostler, '04, presiding.

President Knode announced the following committees:

Committee on Nominations:
W. P. Wherry, '03, Chairman
G. E. McDonald, '05
J. E. Meisenbach, '04
C. S. James, '99
J. F. Hyde, '07
A. E. Westervelt, '12
J. M. Woodward, '07
A. W. Fitzsimons, '02
C. F. Dietz, '97

Committee on By-Laws:
B. W. Christie, '02, Chairman
A. C. Stokes, '99
C. C. Morison, '03

Committee on Resolutions:
E. L. Bridges, '96, Chairman
H. B. Lemere, '98
J. R. Nilsson, '01
S. H. Smith, '98
A. P. Overgaard, '00

Committee on Finance:
J. M. Patton, '04, Chairman
H. A. Wigton, '05
A. B. Lindquist, '01

University of Nebraska, College of Medicine

MONDAY, OCTOBER 12, 1914

CONFERENCE.

METHODS OF DETERMINING MENTAL CAPACITY.

By Geo. Mogridge, M. D.

Superintendent of the Iowa Institution for Feeble Minded Children.

What follows will have reference to the "feeble minded" and not in any way to cases of insanity.

Feeble mindedness has been roughly spoken of as arrested development, and this is true in part, as it is an incomplete development with insufficient inherent power to ever attain the normal.

The range of mental feebleness is from the border line cases to those of absolute idiocy, and is grouped as follows:

Morons—High, middle and low.

Imbeciles—High, middle and low.

Idiots—High, middle and low.

This classification is of recent date and is founded upon examinations of mentally deficient children by the now well known tests of Binet and Simon.

These tests are in very general use for determining the mental age of the feeble minded, and in a general way the results show the mental retardation in a given case. In young subjects this retardation may not mean much,—it may be due to environment, race or other conditions rather than to defect, so that these tests, in themselves, are not to be considered as absolutely diagnostic. Nevertheless, they are efficient and accurate for determining a given mental status, up to the age of ten or twelve years.

In addition we find it necessary to examine carefully into environment, and this must include racial and family characteristics and traits, physical defects, and the moral and ethical nature of the subject.

It will be readily understood that there are no special difficulties in determining the lower forms of mental incapacity, but these begin as we ascend the scale of intelligence, the really difficult problems being found in the higher grade morons, who so nearly approach the normal that mental defect is often only suspected from the life and actions of the individual.

In older cases it should not be forgotten that the supreme tests of mental soundness is, after all, "the ability of a man to earn a living, to maintain himself, independently in the station of life in which he is born. If a man can secure a paying job and keep it and satisfy his employer, it is extremely unlikely that he is mentally defective."

DISCUSSION.

DR. WIGTON: Question regarding the use of these tests in the public schools. Are they used at any place and why could they not be used to prevent the common occurence of an entire class being held back on account of one or two so-called backward children? Could these tests not be used in some way as a means of grading the pupils to determine the proper position of each?

DR. MOGRIDGE: The medical inspection in schools in recent years has been confined to strictly medical points. Considering that, according to statistics, one child out of every four hundred is mentally deficient this undoubtedly has a bearing upon the schools. But the field of these tests would rather be in elimination than in grading. Special grades could not be established for these pupils, which would be necessary, and they should be sent to institutions specially equipped in these lines.

DR. CHRISTIE: There is a conflict with the law in regard to the disposition of the so-called moral perverts. These children are perhaps met with oftener than any other pathological class and in the courts it is impossible to get judgment upon them, assigning them to the charge of any public institution. Would they not come under the definition of insanity and should they not be judged so by the courts?

DR. MOGRIDGE: These moral perverts would come under the classification of mental derangement or insanity and should be so judged by the courts, but it is another thing to get the courts to do this.

DR. POTTS: What effect, if any, does the removal of tonsils and adenoids have upon supposed criminal tendencies in children and what beneficial effect in "cretins" and "mongolians?"

DR. MOGRIDGE: There is no such thing as criminal inheritance. It is made by mental defectiveness and environment. The removal of the tonsils and adenoids, in as much as they are pathological and an irritative factor, may cause some improvement. In "cretins" and "mongolians" the operation should not be done as the beneficial result is very small and there is a greater danger of the patient being a bleeder. A cretin is defined as an individual with an absent or perverted secretion of the thyroid gland and has a group of very definite characteristics. The mongolian is an example of an arrested development and it is for this reason that there is such great resemblance among individuals. They all possess some fundamental features or characteristics perhaps representative of some earlier stage, but have failed to develop the higher and individual characteristics of man. If the association desires it, an example of the cretin and the mongolian will be presented at the conference next Thursday afternoon.

THE EARLY DIAGNOSIS OF TUBERCULOSIS OF THE HIP JOINT.

By J. P. Lord, M. D.

Typical hip joint disease, like other typical affections, may be diagnosed on sight. I shall, therefore, confine myself to the very early cases in children in the first decade of life. A careful history should be obtained with special stress on such points as family tuberculosis, previous limp, or complaint of pain about the hip or knee, night cries, and injury. One may be unable to obtain any definite history upon any of the above mentioned points, especially injury. Children are apt to conceal the history of a fall from an out-building, a tree, or a fence, for fear of the consequences of disobedience. I once had a case of fracture of the epiphysis as a result of a fall from the roof of a coal house, the history of which was concealed for two weeks. The trauma resulted in tuberculosis, shortening and ankylosis. We must, therefore, depend mostly upon conditions found by painstaking examination. This may require frequent repetition in doubtful cases, but as the consequences are so tremendously important too much care cannot be exercised. All clothing should be removed and the patient walked about the room. The earliest and most trustworthy sign of beginning joint disease is muscle spasm. It may be noticed as the patient walks that the muscles of the thigh stand out prominently, the limb is more or less flexed, abducted and the foot everted. Muscle spasm may, however, be better appreciated by manipulation with the patient on the table. A limp may be observed and one also notes that the heel is not planted firmly. The knee is held slightly forward due to flexion and more weight is borne upon the sound limb. From behind one notes that the gleuteo femoral fold, or crease, is shortened or obliterated, as the case is incipient or advanced. Atrophy may be observed, and should be accurately determined by measurement after the patient is upon the table. The atrophy is usually one-fourth to one-half inch at the calf, and from one-half to one inch in the middle of the thigh. There may be apparent lengthening of the affected limb due to inflammatory infiltration and thickening. One rarely sees this early manifestation. All too often, actual shortening has occurred before the case comes under observation.

The patient is now put upon the table and the well side manipulated just as you would palpate the left side first in a case of appendicitis. It gives the patient confidence and imparts some needed information to the examiner. By flexing the well limb until the patient's lumbar spine rests upon the table it will be noted that the knee of the affected side is raised from the table, and when the limb of the affected side pressed down upon the table and the lumbar spine rises in proportion to the degree of flexion fixation or degree of flexion with ankylosis. In very mild cases little or nothing may be elicited by the foregoing tests, but by extreme rotation (first in the well limb to measure the normal range) limitations, tenderness and muscle spasm are revealed due to strain upon certain muscles and ligaments and significant of a limited tender area in the bone or joint. The old method of striking the heel with the leg extended is obsolete. In well marked cases of acute hip disease the striking of the heel produces unwarranted acute suffering, is absolutely unnecessary, and is to be condemned. The administration of an anesthetic for the purpose of an examination is a positive reflection upon the intelligence and training of the physician or surgeon. The muscular relaxation, incident thereto, breaks down nature's protective fixation. Great trauma results to the diseased parts, no information is gained, and great, possibly irreparable harm is often done. By such practice, abscess is almost invariably precipitated in established hip disease. The only excuse of an anesthetic in a questionable case would be one in which hysterical hip is strongly suspected. My experience has not furnished such a case. On the other hand, it has supplied two cases in which hysterical hip was erroneously diagnosed. One of these died from the ravages of tuberculosis and the other suffered a hip joint amputation. We cannot of course claim that these dire results were directly due to delay and later inefficient treatment, but the inference is justified. Why seek the unusual in making a diagnosis and play against such odds. Tuberculosis of the hip and other inflammatory affections and traumatism to this joint are commonplace. Hysterical hip is so uncommon as to be almost a myth. Though it is a possibility men of wide experience may never see a case.

The X-ray may be of little positive help in very early cases, but where there is pathology of bone, either in the head, neck or acetabulum, it is very satisfying and conclusive in indicating the extent and exact location of the disease. It is almost equally useful in furnishing negative evidence, but synovial tuberculosis is still considered a possibility and too much optimism should not be indulged in after negative X-ray findings. The tuberculin tests are helpful but not conclusive. They are of more value in the negative than in the positive phase. Persistently negative tuberculin reactions almost exclude tuberculosis as the etiological factor in hip affections.

A positive reaction on the contrary may be due to tuberculosis elsewhere. Leucocyte counts are helpful, low counts with the differential in favor of the mononeuclears, are the rule in tuberculosis. Temperature is usual, but is not a very important symptom. Personally I give no more attention to temperature in the diagnosis of hip disease than I do in the diagnosis of appendicitis. As Tubbey remarks, "In typical cases the diagnosis is obvious, in others it can only be determined by repeated examination at intervals and by a careful appreciation of the symptom complex." The same author under differential diagnosis gives conditions among which we find "doubt, difficulty and error" in the diagnosis of the hip disease.

Local inflammation and injuries.
Peri articular bursitis.
Epiphysitis and osteitis near joint.
Infantile paralysis.
Acute infective arthritis of infants.
Arthritis deformans.
Congenital dislocation of hip.
Coxa vara.
Traumatic separation of upper epiphysis of femur.
Lumbar spinal caries.
Knee joint disease.
Hysterical affections of the hip.
Sacro-iliac disease.
Sarcoma of femur.
Abscesses, either intra-abdominal or parietal.

The differentials can be made in the great majority of cases if sufficient time, care and the diagnostic methods at our command be used. On account of its great importance it would be well if hip joint irritation of any character was treated as tuberculosis until a positive diagnosis was made or complete and permanent recovery established.

DISCUSSION.

DR. UPDEGRAFF: The most important thing in tuberculosis of the hip or any tuberculous process is an early diagnosis. Most of the points brought out in Dr. Lord's paper are applicable only to cases that have progressed farther than we would desire for the earliest and most beneficial treatment. One of the best diagnostic symptoms of an incipient tuberculous process is a constant high pulse rate without any discoverable causitive factor. The positive Von Pirquet or tuberculin test is not so valuable a diagnostic sign as the negative test indicating that the present trouble is not due to tuberculosis.

THE PRESENT STATUS OF GYNECOLOGY.

By Palmer Findley, M. D.

In casting about for a subject of practical interest to the Alumni it has occurred to the writer that a fragmentary review of the present status of Gynecology may be of more than passing interest.

The 1914 model of Gynecology displays no inovations in comparison with the 1913 model, but we have to go back but a decade to be impressed with the marvelous changes which have taken place. These changes have all tended toward conservation. In the past year surgery has been very largely supplanted by less hazardous means of treatment and if we are untrammeled by prejudice we will await with keen interest and unbiased minds the results of these efforts which ten toward conservatism.

Pelvic inflammations of one sort or another constitute full one-half of all pelvic disorders in women and it is in the field that conservatism plays its most prominent and effective role. In past years few of these cases escaped the murderous attack of the curet and the uterine appendages and even the uterus itself were wantonly sacrificed. We now hold that the infected uterus should never be curetted save in the exceptional cases where bleeding cannot be controlled by other means. We have learned that in the vast majority of cases the infected uterus and its appendages can be brought to a symptomatic cure by means less hazardous than surgery. We have learned that the two great desiderata in the management of acute and chronic pelvic inflammation are **rest** and **time.** We no longer extol the virtues of hot vaginal douches and glycerine and icthyol tampons for the reason that we have observed as rapid progress in cases which are not so treated as in those which are vigorously and persistently douched and tamponed. Unquestionably ice applications in the acute stage and heat applications in the chronic stage have a paliative effect, but it is questionable if they do greatly stay the progress of the infection or hasten the absorbtion of inflammatory exudates. Where the infection is confined to the endometrium and the subacute or chronic stage has been reached undoubted good comes from the swabbing of the uterus with such antiseptics and escharotics as tincture of iodine, formalin (40%), or zinc chloride (20%). These medicaments, together with cleansing vaginal douches, will do all that can be done to reinforce the two essential factors in the management of these case—rest and time. Where the uterus is deeply infected and the appendages involved such applications to the uterus are meddlesome and harmful. We have so often observed such cases to slowly progress to a symptomatic cure and we have time and again seen such cases restored to the capacity for child bearing that we are constrained to restrain our surgical instincts and await future developments. It is time enough for surgery to step in when time has failed to bring relief, for we must remember that the removal of an offending organ does not open the way for the substitution of a healthy organ.

The Finson rays, which have lately been extolled for their good effects in absorbing inflammatory exudates, are probably of little value and the vaccine treatment has been disappointing and so we summarize our management of these cases as follows:

In the acute stage of the infection, enforce absolute rest in bed, apply ice to the lower abdomen, and give cleansing vaginal douches, each four to eight hours. In the subacute and chronic stages enforce rest as the case may require and council delay in the hope that a symptomatic cure will be effected without the intervention of surgery. Failing in this, surgery may be invoked, but only that surgery which holds fact to the axim, "save that which can be saved." Forswear the use of the curet and in its stead employ antiseptics and escharotics. Over-zealousness in douching and tamponing may do more harm than good, in that they mechanically disturb infected tissues which demand rest above all else.

In the management of uterine displacements, two things must be borne in mind. First, that not a small proportion of displacements exist without giving rise to symptoms; that backache and menstrual disorders associated with uterine displacements are not always the result of such displacements. To prove this you have but to hold such a uterus in its normal position by means of a pessary and note whether or no the symptoms disappear. If they do not disappear then the displacement is not the cause and no good will come from its replacement by operation. Second, it is to be borne in mind that it is not the displacement **per se** so much as it is the cause or causes of the displacement that demand our attention and call for relief. In this connection we are to take note of the faulty habits of the individual, to the damaged supports of the uterus and to the various pelvic lesions which may be the direct cause of the displacement. We are to bear in mind that the uterus is normally a movable organ, capable of being shifted in any and all directions with the changing positions and conditions of the body and we are therefore not permitted to exact a definite fixed position for the uterus under all conditions. It follows that slight variations in position are not to be regarded seriously.

We have been told by certain well qualified clinicians that cancer of the uterus no longer requires operation; that radium will afford an effective means of cure in all so-called operable cases. This is by no means the concensus of opinion and I am of the opinion that radium is losing ground in the esteem of many who were formerly its champion. Radium is not wholly without danger. Bumm has lost five cases from late perforations of the abdominal viscera and the time is too short to know what the ultimate outcome will be in cases which are now presumed to be cured. The watchword is yet, "early diagnosis and early radical operation." But it is still an open question as to the justifiability of so radical an operation as Wertheim proposes, an operation which still entails a very high rate of mortality and morbidity in the hands of the most expert.

The greatest interest now centers on the treatment of uterine hemorrhages by the X-rays. Reference is here made to uterine hemorrhages from fibroids and to the once styled idiopathic hemorrhages which occur at the times of puberty and the menopause and without an assignable pathological basis. The X-rays operate favorably in a large proportion of these cases and do so by producing a follicular atrophy of the ovaries rather than by operating directly upon the uterus. It will therefore be inferred that such treatments are not applicable to young women in whom the menstrual function and the capacity for child bearing are to be conserved. Then, too, there is the possibility of a mistaken diagnosis and cases treated by the X-rays are not wanting in which irradiations have been unknowingly directed to cancer, sarcoma, and to ovarian tumors. For those who would adopt the X-ray treatment of these cases I would advise a preliminary curettage in order that the possible presence of a malignant growth may be excluded. I would advise against such treatment in young women, preferring rather to operate and thereby conserve the ovaries which play a very important role even with the uterus removed. Therefore it is only in fibroids and myopathic hemorrhages occurring in advanced years that we find a place for irradiations. There are exceptions to these also. We would not irradiate pedunculated submucous fibroids, degenerated fibroids, rapidly growing fibroids, fibroids that are incarcerated and cause severe pressure symptoms, nor fibroids that reach to or above the umbilicus.

The X-rays have a useful and very important place in a limited number of such cases, but they will wholly replace surgery. More than that, irradiations will fail in the hands of those who are not experts in the application of the rays. The Gynecologist should select the cases and the Röntgenologist should treat them.

The improved methods of cystoscopy have opened a very practical field in the management of diseases of the urinary tract. Cystitis is a very much abused term and serves as a cloak to hide our ignorance. The modern methods of cystoscopy leave little room for such errors. Time will not permit of a discussion of this subject and I will only refer here to one instance in point. We commonly observe women who complain of incontenance of urine in the absence of fistulae. The cause has bee ascribed to an atonic sphincter. While a limited number of these cases may be so classified the usual cause lies in an inflammation of the internal sphincter and trigone which is easily demonstrated by the cystoscope and calls for the direct application of a silver nitrate solution to the involved area.

Finally we will refer briefly to organo-therapy. I have had the utmost satisfaction in the administration of corpus lutem in the artificial menopause. In full seventy-five per cent of cases the heat flushes and various nervous phenomina are controlled by the giving of five grains of corpus luteum three or four times daily over a period of several months. The results are not so brilliant in the natural menopause, but are always worthy of trial. We are all familiar with the value of pituitrin in obstetric practice and we find it has a limited field of usefulness in controlling the essential hemorrhage of the uterus, but it is not so reliable as is ergot. Of late, it is recommended for relief of dysmenorrhea, as is also corpus luteum, on the theory that menstrual pains are in part due to the lack of internal secretions. As yet this is merely a hypothesis.

TWILIGHT ANESTHESIA IN LABOR.

By Palmer Findley, M. D.

Some years ago the American profession was interested in the combination of scopolamine and morphia as a means of relieving pains of labor. This interest was transitory because it was soon learned that these drugs were not without danger to mother and child.

Uterine contractions were weakened and labor prolonged. Not infrequently post partum hemorrhages followed as a result of uterine inertia. Asphyxia of the new born was not an uncommon sequence and as a result of all this the profession discarded these drugs in obstetric practice.

Last spring an ill-advised magazine article appeared in this country in which the Freiburg clinic was credited with possessing a method of delivering women without pain and without danger. Naturally the public were greatly interested and the profession was besieged on every hand by the lay public for an expression of their opinion on the merits of the procedure. So far as I am aware the profession was a unit in condemning the method on the ground that it is an unsafe procedure.

Prof. Frönig of Freiburg argues that the difficulties of labor among our better classes of society (and this applied particularly to Americans) are not due to contracted pelves or to weakened expelling powers, but rather to nervous exhaustion which is the result of pain. He says that modern women have not the strength to resist the nerve exhaustion incident to pain. He objects to the use of ether, chloroform and gas, because of the demands made upon the physician in charge and because these agencies lessen the force of the uterine contractions. The condition which Krönig endeavors to obtain by the administration of scopolamine and narcophine is that of seminarcosis, in which there is a perception of pain but not an apperception. The parturient reacts to the labor pains, but later has no recollection of them.

The dosage has been very carefully regulated in order that too much may not be given and thereby cause uterine inertia, post partum hemorrhages and asphyxia of the new born; nor too small a dose and thereby fail to prevent nervous exhaustion.

Scopolamine 1/125 grain and narcophine ½ grain is given hypodermatically. At the end of half an hour the patient is asked if she recalls what has transpired since the injection was given. If she answers in the affirmative the dose is repeated; if in the negative the dose is not repeated until the expiration of forty-five minutes. The injections are repeated when the attendant draws a return of memory.

In addition to medication there are other very important influences at work, all tending to hypnotize the patient. No friends are permitted to be present, the room is sound proof, soft blue lights dimly illumine the room and the attendant is skilled in the art of the hypotist. Unquestionably these factors are of the utmost value in obtaining the desired results. Krönig claims no maternal mortality in over 3,000 cases and no ill results to the babies.

While I do not question the truthfulness of his report it is interesting to note that several Americans who resided in his clinic have reported that blue babies were often seen and that the mental state of the women in labor was often most distressing.

In the Charité clinic of Berlin the method was carried out in about 50 cases and in this series there were two maternal deaths and five fetal deaths ascribed to the drugs. Furthermore there were a number of instances in which the heart tones of the child become alarming and called for hasty delivery. Of all the American doctors who visited the Freiburg clinic but one told me that he has decided to give the method a trial.

"TWILIGHT SLEEP."

By A. B. SOMERS, M. D.

Ten years or more ago Painless Labor was being discussed and the method recommended was by the hypodermic use of scopolamine and morphine, and the method was in use to a degree throughout the United States but fortunately did not get into the public print.

About that time Dr. Emory Lanphear of St. Louis, Mo., got interested in this matter, but substituted hyoscine for the scopolamine and added cactin. Hypodermic tablets of cactin, hyoscine, and morphine were put on the market and advertised very extensively among the physicians of the central west, and I think were used by many physicians for a year or two to relieve the pains of child birth, but the results were so generally unfavorable that I know of no one that is continuing the treatment at the present time. My greatest experience was in a maternity home for girls, the baby being an unwelcome visitor. I had no mortality, but it was not unusual to wait for hours, in one instance twenty-four, for the baby to cry, the skin being blue, the respiration shallow, the circulation poor, urine scanty, no disposition to nurse, and on the whole, a complex of symptoms that were alarming. The labor was prolonged and the necessity for operative interference increased.

I believe in the judicious use of narcotics in prolonged labors, but narcotics should rarely be used during the second stage of labor, or during the last part of the first stage, as narcotizing the respiratory centers of a baby seriously interferes with establishing respiration, and no breathing or even poor breathing is a very serious drawback to a new born baby.

I append opinions from prominent obstetricians taken from the "Ladies' Home Journal," and while this journal has been fair in giving these statements, I believe that the pictures of mothers and babies delivered under morphine scopolamine narcosis and the testimony of the mothers regarding painless labor published in the public press will have more weight than scientific opinions. "Twilight Sleep" will naturally increase infant mortality and maternal morbidity.

VICTOR C. VAUGHAN, President of the American Medical Association, says:

The anaesthetic action of scopolamine was first demonstrated in this country. So far, our specialists in this line are not satisfied that this use of scopolamine in child birth is free from injurious effects. This conclusion is based not only on observations made in this country some years ago, but upon recent observations at Freiburg. The women of this country can be sure that the medical profession here is fully alive to everything which may safely eliminate human suffering and abate even to a small extent the pain of the physiological function of child birth. Up to the present time the profession is not convinced that this drug, either alone or combined with morphine, is free from danger, either to mother or child, or both.

CHARLES M. GREEN, M. D., Professor of Obstetrics and Gynecology in Harvard University, says:

My own observations, published in 1903, led me at the time to favor this therapeutic means of producing the "Twilight Sleep" and removing the consciousness of pain, or at least preventing all remembrance of it. I have long since abandoned this agent, however, for two reasons:

First, because it has apparently been the cause, occasionally, of fetal asphyxia.

Second, because the effect of the drug on the mother is often uncertain and unless used with great care may cause unfavorable or dangerous results.

Moreover, we have other and safe measures for the relief of pain in labor. So I have given up teaching the use of scopolamine in my lectures.

J. WHITRIDGE WILLIAMS, Professor of Obstetrics, Johns Hopkins Medical School, says:

We have used the scopolamine treatment of child birth in two separate series of cases at the Johns Hopkins Hospital. But in neither series were the results satisfactory, nor did they in any way approach the claims made for the treatment. We expect to do more with it next year. In the meantime my own experience and conversation with Professor Kroenig do not make me feel that the method really constitutes a great advance over those which are in use by American physicians.

BARTON COOKE HIRST, M. D., Professor of Obstetrics, University of Pennsylvania, says:

As long ago as 1903 a monograph appeared in Vienna, advocating this treatment. American physicians, quite as progressive as any others in the world, tried this method in our largest maternities. Among other places it was employed in the Maternity of the University of Pennsylvania, in a series of cases over a period of two years. My experience with it coincided with that of my colleagues in this and other parts of the world. If enough morphia is given to abolish pain, there is too much danger of hemorrhage in the mother and asphyxia in the child. The scopolamine does not diminish pain, but simply quiets restlessness.

As a member of the Gynecological Touring Club of America, in the summer of 1912, I had the privilege of observing this method at Freiburg in the clinic under the superintendence of Professors Kroenig and Gauss. It was interesting to hear that the morphia was employed in a single moderate dose, following by small quantities of scopolamine. Evidently the disadvantages of the treatment—hemorrhage and asphyxia—had necessitated this modification. My conclusion from this observation and from my own experience was that the quantity of the two drugs being insufficient to abolish pain, the results secured in this clinic were partly psychological—that is, the patients were assured beforehand that there would be no suffering; were deliered in a quiet dark room; were given one moderate dose of morphia and became temporarily under its effect; and, being told afterward they had had no pain, probably left the institution impressed with that belief.

JOSEPH B. DELEE, A. M., M. D., F. A. C. S., Professor of Obstetrics, Northwestern University Medical School; Obstetrician to the Chicago Lying-In Hospital, etc.; author of "Principles and Practice of Obstetrics," "Obstetrics for Nurses," etc., says:

In November, 1913, I spent four weeks in Freiburg and had the opportunity to observe personally and study critically about ten cases of child birth conducted in Professor Kroenig's own clinic. The impressions received and opinions formed were decidedly unfavorable to the method of "Twilight Sleep."

In all the ten cases the birth pains were weakened and labor prolonged in two of the women for almost two days. In three cases pituitrin had to be given to save the child from imminent asphyxia.

In five of the cases instruments had to be used. In my opinion two of these were directly rendered necessary by the paralyzing effects of the drugs, scopolamine and morphine. Extensive lacerations resulted.

Several of the women became delirious and so unruly that ether had to be administered in addition to the scopolamine and morphine, the result being that the infants were born narcotized and asphyxiated to a degree. One had convulsions for several days.

All these occurrences confirmed my own experience with the drugs. I had used them when first proposed twelve years ago. At that time they were extensively employed in Europe and America, but were soon discontinued because they were found impractical and dangerous.

I visited the famous maternities of Berlin, Vienna, Munich and Heidelberg; in all of them upon inquiry I was told that this method had been tried and discarded.

DISCUSSION.

DR. B. W. HALL: An important factor influencing present day labors is that the great majority of babies are unwelcome visitors.

DR. E. A. VAN FLEET: It is estimated that at least 75% of the labors are undesired. The importance of this factor rests in the fact that the mind has a great influence over the patient's opinion of the severity of the labor. This has been illustrated in the stress laid upon the psychological features of the twilight sleep. It is occasionally a pleasure to witness a labor in which the mother is desirous of giving birth to a child and of helping all within her power towards the successful delivery of her baby.

ANNUAL RECEPTION OF THE FACULTY TO THE ALUMNI.

The annual reception of the faculty to the Alumni was held as usual at the College building. The long hall was tastefully decorated with ferns, and music and light refreshments were served.

Dr. Jonas gave a most enjoyable and instructive report of his visit to the clinics of Europe, interspersed with many amusing sightlights and episodes. It was especially interesting to hear the beginnings of the great world war, which has since proved so disastrous. The association is exceedingly grateful to Dr. Jonas for this splendid address.

TUESDAY, OCTOBER 13, 1914.

CLINIC.

Clarkson Hospital, Tuesday, October 13th.

By Palmer Findley, M. D.

CASE I.

History—October 10, 1914.

Mrs. S.—Married, age 28. Three labors. Puerperiums normal. No repair of lacerations.

Family History—Mother, father and three sisters alive and well. No carcinoma or tuberculosis in family known of.

Previous Illness—Typhoid fever at age of 13 years. Common childhood diseases.

Present Illness—Began eight months ago as acute pain in the lower abdomen associated with nausea, diarrhea, excessive vaginal discharge, no vomiting. Recently the pain is more on the right side, coming on in acute attacks with nausea, but no vomiting. It is worse on standing or walking. The vaginal discharge is worse at these times. Has a more or less continuous backache.

Menstrual History—Menses began at age of 13 years, have been regular, lasting two or three days and with a moderate flow. The last menstruation was September 12th. Menstrual pains slight and not always present, of dull character in the lower abdomen. No intermenstrual pains. Has had an excessive leucorrhea for the last five years. The discharge yellow and of foul odor.

General Physical Condition—Fair. No nervous troubles. Some shortness of breath on exertion and swelling of feet if up all day. Appetite poor and bowels constipated. No respiratory trouble. Marked frequency of urination at times, not painful.

Discussion—The essential thing that makes this operation indicated is that the patient is unable to work and has two children dependent upon her. She is a neurotic individual and has complained of pain in various regions. but a fairly constant element has been pain in the back and right side.

Incisions and examination showed a retroverted uterus with adhesions holding the body down, adherent tube and ovary on the right side with a hydrosalpinx.

The left side shows a greater pathology, a completely septic ovary and a hydrosalpinx. There is very little danger of infection from old gonorrheal pus if spilled in the pelvic cavity. It is usually sterile at the end of six weeks, but may contain additional organisms. In removing an infected tube, it should always be cut out of the wall of the uterus, and not simply tied off. It is not necessary to try to save this ovary as the right is in good condition and remaining. The right tube and the left tube and ovary were removed. Number 2 plain catgut was used. In the first sewing, do not try to prevent raw surface as this will be covered by drawing the broad and round ligaments over it and we need a raw surface.

The removal of the tube simplifies the correction of the displacement of the uterus as the round ligament can now be brought directly over and does not have to pierce the broad ligament. The round ligament is grasped two inches from the attachment to the uterus and transfixed in the median line posterior to the uterus. When done on both sides this puts the uterus in a sling.

A pack of iodoform gauze is placed in the cul-de-sac posterior to the uterus, and the abdomen closed. This will be recovered through the vagina. It is for drainage, as there may be oozing when the patient is put in the flat position and the blood pressure thus increased.

The vaginal work consists in swabbing out the uterus with zinc chloride, 20¾, and pulling out the iodoform gauze through an opening made in the posterior fornix. This makes much better drainage than through the abdomen. The uterus should not be curetted as it increases the danger of spreading the infection. The danger is not so great here, however. Thorough dilatation of the cervix causes better drainage. Post operative treatment includes an injection of 5% zinc chloride about six times in two weeks. If this is overdone stenosis of the cervix may result.

This operation, which included the removal of the two tubes, can only be done when the woman is unable to bear children. This was true in this case previous to the operation and is now.

CASE II.

History—October 5th, 1914.

Mrs. B.—Married, age 26. Primipara.

Present Illness—Began four weeks ago, as an excessive hemorrhage following about one month's pregnancy. At first the flow occurred at two different days in the first three weeks. During the last week there has been continuous hemorrhage, bright red in color with a few small clots.

Menstrual History—Menses began at age of 18 years, were irregular, of 3 days duration and of small quantity. The last menstruation was August 26th. The pains were located in the lower abdomen and did not begin until after the onset of the flow. Their duration was three to four hours. Very little intermenstrual trouble. Slight pains in the back and occipital headache. Very little leucorrhea.

General Physical Condition—Has been very healthy. Is rather nervous and troubled with occipital headache. No heart or vascular trouble. Appetite good, bowels constipated. Lungs in good condition. Has frequent urination during the day, but not painful.

Diagnosis—Inevitable abortion.

Treatment—Expectant, as bleeding not excessive and general condition good.

October 9th, 1914—Fetus expelled without the membranes. Moderate bleeding.

October 10th, 1914—Placenta and membranes expelled.

Discussion—The treatment in this case of threatened miscarriage was quiet in bed, and ice on the abdomen. There was no temperature.

The foetus in all reason was dead. It was passed, age two months, and thirty-six hours elapsed before the passage of the placenta.

The waiting policy was adopted in this case for two reasons. Firstly, there was no excessive hemorrhage; and secondly, there was no temperature. If an excessive flow had begun, the vagina would have been packed tightly, the idea being not to enter the cavity of the uninfected uterus as indicated by the normal temperature. The answer to the question of how long it would be advisable to wait in such a case with no temperature or bleeding is difficult to answer. Theoretically you might wait several days, but uneasiness would perhaps have prompted a dilatation and delivery in 24 or 48 hours longer.

The third element of danger of such a case is subinvolution. Ergot was given as soon as the placenta was delivered. If given before it would have caused contraction of the cervix and held the placenta. Ten drops of the ergot is given four times a day with rest in bed. Hot vaginal douches favor the contraction of the uterus.

At birth you should wait four hours for the delivery of the placenta. Do not knead the uterus as it causes relaxation, loosens portions of the placenta and promotes hemorrhage. A test for the passage of the placenta into the vagina is pressure back of the symphysis. If the cord elevates with the uterus the placenta is still within the uterus.

CASE III.

History—October 10th, 1914.

Mrs. W.—Age 58 years. No puerperal history.

Family Record—Maternal grandmother, aunt and cousin had carcinoma. Mother died at age of 78. Father died of paralysis.

Previous Illness—Negative.

Present Illness—Began four months ago as a foul vaginal discharge containing blood in the last two months. Pain in the lower abdomen two weeks before admission.

Menstrual History—Menses began at age of 13 years and were normal and regular. The menopause occurred ten years ago. The menstrual pains were in the abdomen and back, of dull character and ceased when the flow began.

Discussion—In this inoperable cancer the entire region of cervix and vagina is a sluff. The condition is known to have been present nine months. There were hemorrhages but no pain. The evidence was simply a discharge.

For treatment the carcinoma was scraped to sound tissue and cauterized with the soldering iron. Then acetone was poured into the vagina to harden the tissues, preventing such rapid breaking down. Radium is palliative as it will cause absorption of the exudate which is causing pain. All cases die within three years, but it is thought that the acetone prolongs life one or two years in some cases. Ether is not necessary ordinarily. The pure acetone is put in twenty minutes and is decanted and swabbed out. The lobia should be anointed thoroughly with vaseline. The acetone causes no pain in the vagina or cervix, but burns on the vulva.

CLINIC.

Clarkson Hospital, Tuesday, October 13th, 1914.

By J. E. Summers, M. D.

CASE I.

History—Child, age 5 years, female.

Present Illness—A tumor beneath the tongue, causing protrusion of the tongue and deformity of the jaw. It has been present since birth. At age of 9 months a portion was removed for examination.

Dr. Summers—This is a case of congenital obstruction of the efferent lymph vessels of the right side of the base of the tongue.

It might be considered an aneurism of the lymphatics. There are very few cases of sarcoma or carcinoma of the tongue in children.

The operation should have been done as early as possible after birth. The long continued obstruction and pressure has resulted in a very evident deformity or pushing forward of the lower jaw, which will be more or less permanent.

The operation was done two weeks ago under ether. A suction apparatus attached to a hydrant was used to keep the blood out of the throat and larynx. It was a very bloody operation. The tongue was drawn out, an incision made on the side of the enlargement and the entire tumor enucleated with scissors and fingers.

After the operation the tongue was swollen two or three times as large as before.

CASE II.

History—Sept. 14th, 1914. Mrs. O. Housewife, age 59 years.

Present Illness—Pain in the epigastrium and left costo-vertebral angle. Began about seven months ago, occurring about 30 minutes after meals, followed by gas, some eructation and vomiting. The vomitus usually contained only food, but three times she had severe hemorrhage, sending her to bed for 3 or 4 days. The pain has become almost continuous and so severe as to require ⅜ grain of morphine a day. The pain is also sometimes relieved by vomiting, by soda or by eating.

Past Illness—Has had similar but less severe trouble since age of 16 years. Gastro-enterostomy performed eight years ago. Relieved for five years. Then had recurrence and hemorrhages and in second operation the pylorus was tied off. This gave relief until seven months ago. Menopause 8 years ago.

Family Record—Father died of pneumonia. Mother died about time of menopause. Two brothers dead. One sister alive and well, one died following childbirth.

Physical Examination—Pale, fairly well nourished. Suffering much pain. Eyes negative. Mucosae pale.

Abdomen—Scar of old operation in mid-line, above umbilicus. Marked tenderness over stomach, to left of mid-line, over an erea 3 to 4 inches in diameter. Also a point of exquisite tenderness in the left costo-vertebral angle. Some resistence, but no definite mass in the left hypochondriac region. No rigidity. Left leg below knee moderately edematous.

Operative Procedure—Incision in mid-line above umbilicus. Stomach and omentum adherent to previous operation scar. Adhesions cut and lesser omentum divided. Pylorus found patent, likewise the old gastro-enterostomy opening. The ulcer occupying the posterior surface and lesser curvature was adherent to the pancreas and with the least manipulation perforated into lesser sac. Ulcer excised and stomach closed. The omentum was pulled up and sewed over wound. The lesser omentum repaired except for a cigarette drain from the lesser sac. A cigarette drain was also placed through the gastro-colic mesentery into lesser sac. The result is an hour-glass stomach, the pylorus emptying one division and the gastro-enterostomy opening the other. Wound closed in layers.

Bedside Notes—September 20th. Patient complains of pain in lower left axilla and a pleural friction rub can be heard.

September 21st. Patient still complains of pain in left chest and has temperature 102.4. No signs of pneumonia.

September 22nd. Pain in left chest and grunting respiration. No signs of pneumonia except exaggerted friction rubs. At 9 a. m. signs of consolidation in left upper lobe posteriorly.

September 26. Temperature dropped to 99.3 and left lung showed signs of resolution.

September 28th. Right base shows patches of rales.

September 29th. Right base in axilla and below angle of scapula shows definite signs of consolidation.

October 6th. Left lung shows large moist rales. Breath sounds normal. Right lung still shows signs of consolidation.

DR. SUMMERS: Thirteen years ago this patient had the classical symptoms of gastric ulcer. An operation at that time, gastro-enterostomy, showed a large palpable ulcer in the posterior wall of the stomach, adherent to the pancreas and with a large blood vessel crossing it. It was not removed. A second operation was performed two years ago, when the symptoms returned with severe hemorrhage and pain which required morphine. This time the pylorus was occluded by tying a heavy linen cord around it, thinking that this would aid by causing all the food to pass through the gastro-enterostomy opening.

The third operation recently disclosed a perforation at the ulcer but the infection was localized by adhesions. This time the area was excised leaving, however, the stomach of an hour-glass shape.

The pylorus was found patent, in spite of the previous tieing, showing that this procedure does no good. The same has been noted in the case of Caesarian section in which the tubes were simply tied. A subsequent pregnancy proved that the lumen was re-established.

At the present time pain is gone and the patient should make a recovery.

CASE III.

History—Oct. 2, 1914. Male, age 37 years, farmer.

Present Illness—Pain and tenderness in right side of abdomen, began about two years ago, and was operated for gangrenous appendix. (2). The trouble was not helped and has bad pain in right side almost constantly since. Twelve days before admission was taken with much sharper pain in about the same place. It sometimes

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radiated down to thigh and was severe enough to double him up at times.

No definite relation to eating and nothing relieves it. Never jaundiced. Belches gas after meals. No vomiting, but feels nauseated at times. Bowels fairly regular. No urinary disturbances.

Past Illness—Sick headaches all his life. Malaria four years ago.

Family Record—Mother troubled with gall stones. Father died at age of 63, cause unknown by patient. Three sisters alive and well.

DR. SUMMERS: Operation one week ago. Gastro-enterostomy. A year ago an inflamed appendix with pus in the tip was removed for the symptoms of pain in the abdomen and vomiting. Had had previous attacks. Recently the pain returned, located higher up, and no vomiting. The case was typical of hyperchlorhydria. No occult blood was found in the stool.

The operation disclosed a constricted ulcer of the duodenum, indurated and ready to perforate. A purse string suture was placed around the ulcer and the surface thus closed in and a portion of the omentum attached. Gastro-enterostomy was done, the pylorus left patent. If recurrent symptoms set in the duodenum will be removed.

In the later stages of gastric and duodenal ulcer, surgery is necessary. The early stages will heal by proper diet and medicine.

CASE IV.

History—October 11, 1914. Male, railroad work. At 2 p. m. on date of admission was struck on the head by a falling iron bar. He was momentarily unconscious, then got up and walked into car and was brought to Omaha. No subsequent unconscious period. No motor or sensory disturbances. Examination showed a compound depressed fracture of the skull.

DR. SUMMERS: Under a 2% novocaine local anesthesia, the skull was trephined, a piece of the inner table removed, elevation of other parts and grooves of dirt chiseled out. A circular injection was made about the area. One hundred cubic centimeters of a 2% solution of novocaine can be used without a toxic effect. To an ounce of this solution, one drop of a 1 to 1,000 solution of adrenalin is added. Local anesthesia should always be resorted to in puncture for empyema.

CASE IV.

History—June 8, 1914. Male, age 57, married.

Present Illness—Tingling sensations in fingers of right hand, with swelling, cyanosis and inability to use fingers well. Trouble began two years ago, first noticed as a sticking, tingling sensation in the ulnar side of little finger. It soon spread to the fourth finger, and then very slightly to the thumb. Severe pain at times. Cyanosis and swelling appeared a little later. Has lost considerable weight and suffered from constipation and hemorrhoids.

Physical Examination—Heart and lungs negative. Abdomen negative. A few palpable glands in axilla and groin. Some pyorrhea alveolaris. Right arm blue, swollen, no paralysis or loss of sensation but impairment of both over area of distribution of ulnar nerve. Tenderness below clavicle. X-ray showed a thickening of coracoid and acromial processes of right scapula.

Operation—A thickening of coracoid process found but not sufficient to cause symptoms by pressure on brachial plexus and axillary vein. Further search disclosed a small, soft tumor surrounding the median and ulnar nerves and extending along the vessels behind the clavicle. Tumor removed.

June 22—After operation in which the cephalic vein was of necessity tied, the return circulation was very poor. Pulse palpable. Increased swelling and capillary hemorrhages caused a black color. Separation of epidermis began. A subcutaneous infiltration of blood occurred, extending from shoulder down right side of back to buttocks. On the first day after operation Dr. Summers opened the cephalic vein and relieved the congestion by bleeding. The arm was kept elevated and dry by powder. The intense congestion decreased and the excessive sanguineous drainage largely ceased. The patient's general condition excellent.

July 5—Wound nearly healed. Drainage slight.

August 31—About six weeks ago patient suddenly developed phlebitis of the left leg. This gradually improved until now, instead of the whole thigh and leg, the foot only is swollen. Patient walks about with crutch. Right hand not useful.

On Discharge—Able to write with right hand and walk without support, hand and foot still slightly swollen and congested.

CASE V.

DR. SUMMERS: This extreme swelling and threatened moist gangrene of the right forearm and hand was evidently due to an interference of venous return for the pulse could be easily felt. At first it was thought to be due to an exostosis of the coracoid process of the scapula causing pressure on the axillary vein. However, there was found a neuroma of the ulnar and median nerves about the size of a hen's egg, causing an almost complete obliteration of the axillary vein. Later the same condition developed in the left foot probably due to an embolus with thrombosis.

There is no infective history. It was thought at first that moist gangrene would set in but there is now some improvement and slight use of the hand. The least chill causes the foot to swell again.

CASE VI.

History—Largely negative as to the nature of the inquiry. Was leading a horse and in some manner was thrown. Immediately it was noticed that both lower limbs were paralyzed. The X-ray showed the intervertebral space between the last thoracic and the first lumbar vertebrae much lessened. The bones were directly in contact.

If in a case the paralysis is immediate and complete there is almost a complete destruction of the cord at once and it is inoperable. If the case shows an increasing paralysis it is very likely due to exudation or hemorrhage. Waiting in these cases, gradual recovery may take place. In an incomplete and more or less stationary paralysis operation may aid in recovery if done early.

In the present case there was no deformity at first, now a kyphosis is present. The line of the paralysis has descended a little. In such a case it is almost impossible to prevent bed sores. Cystitis is another dangerous complication.

CLINIC.

Clarkson Hospital, Tuesday, October 13.

By Leroy Crummer, M. D.

CASE I.

Man, age 68. Diagnosis, Hodgkin's disease. Cardiac decompensation.

Present Complaint—Shortness of breath began one year ago last winter, better in summer. Heaviness in right epigastrium on right side. Cough began in January, said to be asthma. Fullness and soreness in epigastrium. Noticed urine high colored. Began to drink much water, then feet began to swell and get stiff. Cathartics taken and came into hospital two weeks ago. Noticed urine becoming heavy again. Kidneys stopped working. Constipation came on suddenly. Pain in stomach for two days. No vomiting.

Physical Examination—Cyanotic and icteric. Glands enlarged everywhere, heart enlarged both ways. Mediastinum dull, full of glands up under the manubrium. Liver enlarged four fingers. Moist raled over base of lungs. Edema of feet marked. Abdomen hard from tympanites and some fluid.

Urine—Albumen negative.

Blood—Hemoglobin, 55% ;reds, 3,500,000; whites, 10,000. Polymorph., 40%; lymph., 59%.

Treatment—Given strophanthine and digitalis. Vaccine, two minims, increase every four days to forty minims, then five doses, then seven doses of two minims. Digitalis three courses. Glands nearly completely gone. Compensation restored. Blood, Hb. 70%, reds 4,900,000, whites 7,000.

October 12, 1914—Urinary output about the same. No dyspnoea. not sensitive to exposure. More rides in the air the better. While taking B. & B. could not pass gas without fear of bowels moving. For last five days stopped B. & B. and gas moved freely and bowels only once in 24 hours.

DR. CRUMMER: A lot of constitutional diseases have recently been declared infectious. In the light of such investigations as Rosanow's, gastric ulcer has been declared of infectious origin, but there is much doubt on this. Along the same line Hodgkin's disease has been proven a germ disease. From an examination of the glands a diptheroid bacillus and a staphylococcus have been found.

Case I is an example of Hodgkin's disease. The typical diptheroid germ was found in the glands and a vaccine made.

A stock vaccine was used in two other cases, a man and a woman. The man improved somewhat, the attacks were less active, but he has been lost track of. The woman secured reduction of fever and of glands, life was prolounged but has relapsed since. She is using vaccine again.

In this case most brilliant results were obtained. Two features were associated, the cardiac decomposition, and jaundice, enlarged liver and fluid in the abdomen. A distinctive feature of Hodgkin's disease is that it is no respecter of tissues. The glands enlarge in spite of the surroundings, and cause neuralgias, pain, and edemas.

In leukemia this is not true. No heart muscle defect was found, nor valve trouble, but had signs of decompensation. Found a tremendous increase of the mediastinal lymph glands, hence limiting the mobility and causing a decompensation similar to adhesive pericarditis. Digitalis was given, and strophanthine intravenously. With three to four day treatment with intermissions there was gradual improvement. Stock vaccine first used, 2 to 4 minims hypo with an immediate improvement in the size of the glands after seven or eight doses. A prostrating diarrhoea followed each dose, but there was still improvement, and later the patient was able to leave the hospital.

Patient was gone three weeks, increased strength, but slight enlargement of glands. Able to control bowels, blood picture normal, no jaundice, few glands. At first they were in pockets, not now. Heart normal in size, liver normal. There is a slight irregularity of the heart beat but not as much attention is paid to this as a few years ago. The legs show buried veins, signs of oldedema. Another course of vaccine treatment will be begun.

The clinical picture in Hodgkin's disease differs from the leukemias. In the latter the lymphocytes are 80 to 85% with a near normal colunt, 20,000 to 30,000. In Hodgkin's disease the lymphocytes were 40%, but a normal count often runs to 60%. Now the diptheroid bacillus is diagnostic. This differentiates it from sarcomatosis of the glandular origin which is very similar.

CASE II.

Male, age 52, single. Newspaper. September 23, 1914.

Diagnosis—Achlorhydria anemia.

Previous History—Attack of pain said to be gall bladder. None since.

Present Complaint—Stomach trouble. Pain one-half hour after eating since last spring. Been getting gradually worse. Had hay fever and lost 20 lbs. in last six weeks. Pain over back and down left side. Eating relieves pain at times. Pain comes on from drinking water. No vomiting. One spot hurts. Use to have two or three large stools each morning as got up. Lost most of weight last six weeks.

Physical Examination—Emphysematous chest. Heart outlines covered by lung. No rales. Liver slightly enlarged and a certain amount of rigidity in epigastrium.

Stomach Analysis—Hardly any contents recoverable. HCL negative. Will return for stool. Blood never found in stool. Diet increased to full with lunches, and diarrhoea controlled by acid. Gained 5 lbs. in two weeks. Feels very much better.

DR. CRUMMER: Lack of hydrochloric acid in the stomach is the cause of a lot of digestive morbidity. Two forms might be identified; one in which there is pain immediately after a meal and a second which presents a type of diarrhoea occurring 15 to 20 minutes after starting to eat. A so-called functional achlorhydria is considered an antecedent of several of the pernicious anemias.

In the present case malignancy was suspected and the stool searched for occult blood which was negative. Under treatment he gained five pounds in two weeks. The physical examination was negative for an emphysematous chest, which accounts for his frequent colds.

This is the type of case found wandering around everywhere and which represents ten to twenty per cent of all complaints of digestive disturbance. The common practice is to put these patients upon alkalies on account of the pain, but this produces no curative results. It is hard to diagnose this condition from gastric ulcer. The only way is by examination of stomach contents. The regurgitation, vomiting and diarrhoea can be explained on the basis of lack of hydrochloric acid in the stomach. The acid normally prevents relaxation of the cardiac sphincter. In achlorhydria this tone is lost, hence the regurgitation and vomiting. The pyloric sphincter is controlled by the acid in the duodenum. Normally there is no diarrhoea because a second bolus of food is not put into the bowel until the first has been neutralized. But in achlorhydria this controlling factor is absent and the bowel is filled too fast. The occasional case of constipation met is largely a matterly of mechanics. The first tendency is to stop eating, and go on a milk diet, from which there is no residue, hence constipation.

The acid in the stomach serves three functions. First, it starts proteid digestion, forms acid albumens, which is the least important work. Second, it is the time lock of digestion, controlling the passage of the bolus into the bowel. If this time is proper it is the secret of digestion. Third, it is antiseptic, killing the bacteria ingested. The hydrochloric acid is under the control of the emotions. Grief, fear, guilty conscience suppress it.

The treatment is with dilute hydrochloric acid at one-half hour intervals, as it is needed. In four out of five cases immediate results are obtained. The fifth case is probably an achylia, of infective nature, and requires a long rest cure and certain definite diets. This case may need pepsin, the others do not.

The effect of long continued cases of achlorhydria is an ultimate disturbance of the blood forming organs. There is always more or less simple anemia, rarely over 70% hemoglobin. Finally pernicious anemia may be established. One-third of the cases of pernicious anemia give a typical history of antecedent achlorhydria, with doctoring for stomach trouble. Other anemias are known to be gastrointestinal origin, as that among the Russians due to Bothriocephalus latus, the anemia due to hook worm and even the tape worm.

There may be no symptoms and an existing achlorhydria with anemia.

Iron administered will produce no results. There is no line of demarcation between grades of anemia, as simple, pernicious and malignant. Of the 50% of so-called functional disturbances according to the Frendin principles, 20% represent gastric ulcer, 10 to 15% achlorhydria, 5% malignancy and a small per cent gastritis.

CONFERENCE.

IRITIS.

By H. Gifford, M. D.

In writing a twelve minute paper on a subject of such breadth, many distinctions between the different varieties of iritis must necessarily be omitted and, for the general practitioner, this is not altogether to be regretted since these niceties can never be carried in the mind of one who is not constantly using them; and the most important lines of diagnosis and treatment can be laid down without them.

With respect to the definition of the term, the only point that I think worth calling your attention to is that the disease formerly known as serous iritis and still aften referred to by that name is sometimes not a true iritis at all. In this condition which has, as its essential characteristic, the accumulation of punctate deposits on the posterior surface of the cornea, together with slight or no signs of external congestion, the actual lesion is in the ciliary processes, and the iris is only secondarily, if at all, affected. As to the etiology of iritis we know definitely that the germs of syphilis, tuberculosis, and, if there is one, that of rheumatism, are the most common etiologic factors. We also know that in any infectious disease there may be a localization of the germ or of its toxins in the iris; the gonorrhoeal form being an excellent example of the latter class, in which we are really not certain whether it is the germs or simply the toxins which produce the iritis. Besides these, there are the traumatic inflammations of the iris, in some of which germs are carried directly into the eye from the exterior; while in others, the traumatism simply produces a point of least resistance in which germs settle from the general circulation. In this group must be placed sympathetic ophthalmia, in which beside an inflammation of the iris, there is an affection of the whole uveal tract.

As to the differential diagnosis this is easy enough in the pronounced cases with deep intense congestion, discolored iris, exudate in the anterior chamber and the pupillary space, with marked pain on pressure and deep pain, especially at night or toward morning. A patient with these symptoms surely has an iritis and is ready for the general treatment that all cases of severe iritis require, whatever the etiology. But in the milder forms the question often arises whether the congestion of the eye ball is superficial and due to some irritation of the cornea or conjunctiva, or whether there is really some inflammation of the iris, or finally whether the trouble may not be glaucoma. If there be no inflammation nor foreign body in the cornea and no excesive secretion from the conjunctiva, the chances are that the congestion is of deeper origin, and if on applying the well known test of pressing the lower lid against the eye ball and stroking the latter away from the cornea, the redness does not momentarily disappear from the sclera, one can be tolerably certain that the deeper structures are involved. Slight changes in the aqueous and in the color and structure of the iris are sometimes difficult to be sure of unless one is practicing steadily at eye work, but if glaucoma can be excluded it is always permissible to use a mydriatic to determine whether there is any tendency for adhesions to form between the iris and the surface of the lens. If the pupil dilates readily and widely upon the application of a drop of 1% atropine, leaving no traces of pigment on the surface of the lens, one can be quite sure that if any iritis is present it is of a very mild variety; while if it does not dilate well or if signs of adhesion between iris and lens become evident, vigorous anti-iritic treatment will be in order.

To distinguish between iritis and acute inflammatory glaucoma is one of the most difficult eye-problems which the general practitioner has to solve, and one which teachers of ophthalmology are always harping on because of the lamentable results which they not infrequently see from the failure to make the distinction. Some symptoms are common to both affections, such as failure of vision, pain, congestion of the eye ball, tenderness on pressure, and a more or less hazy appearance of the iris or cornea. But in glaucoma, the loss of sight is apt to be sudden and extreme while in iritis it comes on slowly. The congestion of the ball is generally more pronounced in iritis, and if any haziness is present it can by careful inspection usually be located in the aqueous, while in glaucoma it is generally in the cornea. The anterior chamber, in glaucoma, is apt to be shallow and the pupil somewhat dilated, with a tendency to an oval outline; while in iritis, the chamber is generally deep, and the pupil small and round if no mydriatic has been used. The crucial point, of course, is the condition of the intra-ocular pressure and if this is plainly higher than it should be, no doubt need be entertained as to the glaucomatous nature of the disease, unless the case happens to be one of those rare ones in which iritis is complicated with high tension. In estimating the intra-ocular pressure the eye-ball should be palpitated with two fingers through the lightly closed upper lid, much as if it were an abscess; and a careful comparison should be made in doubtful cases between the sound and the diseased eye; or if both eyes are affected, with a normal eye, remembering in the latter event that the normal pressure varies considerably in different people. In summing up the probabilities in any case it should be remembered that iritis is more common than acute glaucoma, and is more apt to occur in the years from 20 to 45, while acute glaucoma is preeminently a disease of late middle and early advanced life. When all has been said and done, however, cases will remain in which the physician is in doubt as to whether the symptoms are due to glaucoma or iritis, and in these the proper course is to use those measures which can safely and advantageously be used in both affections and avoid giving either atropine or eserine until an expert opinion can be obtained. Such measures are the free use of salicylate of sodium or some of its substitutes; hot applications for half an hour, three to six times a day and moderate purgation. These should be used both in acute glaucoma and in iritis and by omitting the atropine the physician may avoid the fatal mistake of dilating the pupil, if glaucoma is present, while the omission of eserine or any other miotic may prevent an aggravation of the trouble, if the disease be iritis.

With regard to the further treatment of iritis, this must vary according to whether the inflammation be syphilitic, tuberculous, gonorrhoeal, or from some other cause.

This brings us to the question: How are we to distinguish between the different sorts of iritis? The answer must depend both on the history of the case and upon the objective characteristics. Concerning the latter it may be said that, leaving out of account the unusual causes, such as leprosy, sporotrichosis and caterpillar hairs, an iritis which shows distinct reddish or yellowish nodules is, for practical purposes, either syphilitic or tuberculous. In deciding between these, remember that the former is more apt to be accompanied with violent inflammation, and is most apt to occur in the years from 18 to 55, while the latter is exceedingly rare in this region, is most common in children and generally runs a slow course. But many cases of syphilitic and tuberculous iritis show no nodules and even when these are present, the tuberculin or Wasserman test may be necessary to decide the point. Beside the cases with nodules I have found that tuberculosis of the uveal tract occasionally occurs in young adults in the form of the so-called serous iritis mentioned above with only moderate signs of inflammation, punctate deposits on the posterior surface of the cornea and, in some cases, with a decided tendency to high tension. Keep in mind finally the possibility that some patients in which the decision between syphilis and tuberculosis is in doubt may harbor both these efficient aids to nature in her fight against over population. Aside from the foregoing, the objective signs of iritis are not specific and the diagnosis of the cause must depend upon the history and upon the occurrence of extra-ocular symptoms.

In lining up the case for treatment, it may be said that all cases of syphilitic iritis should receive very active mercurial treatment, preferably in the form of inunctions; a piece of the blue ointment the size of the patient's whole thumb being rubbed in every day for one week out of two or three, until acute symptoms have subsided, gradually increasing the interval between inunction weeks to eight weeks, with iodide and perhaps salvarsan between times, until the patient is well. In tuberculous iritis, a long course of tuberculin injections beginning with 1-500 milligram and increasing very gradually should be given. In gonorrhoeal iritis gonorrhoeal vaccines sometimes are of great service. But in all these cases in which the symptoms are violent and in all other cases of so-called rheumatic or non-differentiated iritis; hot applications, atropine, attention to the bowels, and large doses of salicylate of sodium or some substitutes for it should be used and should be kept up until all signs of inflammation have been gone for a week at least. By large doses of salicylate I mean a grain a day for each pound of body weight or even considerably more, say 200 grains a day for a 150 lb. man where it is well borne and the symptoms do not let up on the average dose. Give the salicylate in brandy, 15 grains to the teaspoonful, and give it by the rectum if it is not well borne by the stomach. As to the substitutes for the salicylate, aspirin is the most popular and I have found no especial advantage or disadvantage in its use. The most valuable substitute is atophan in doses of the same size. This drug has some distinct advantages over salicylate or aspirin. It is fully as hard on the stomach but it causes very little sweating, tinnitus or fulness of the head. Its main disadvantage is the price. It costs $1.50 or $1.75 an ounce, as opposed to $1 a pound for salicylate. In the use of atropine physicians generally are too sparing in iritis. A 1%, or in bad cases even a 2% solution should be used, putting in three to ten drops three times a day, being careful to keep it out of the tear passages. Where it is desired, the effect of the atropine can be increased by giving a drop of a 3% solution of cocaine, and one of adrenalin 1-1,000, before the atropine. As long as any inflammation continues do not let up on the atropine just because it fails to dilate the pupil. The same solution, which may produce no apparent effect at first may break the adhesions later when the inflamation begins to subside. Even when you feel sure that the patient has no syphilis give a vigorous course of mercurial inunctions followed by full doses of iodide of potash, when the full doses of salicylate fail; the result is sometimes most striking and satisfactory. When other things fail, or in very bad cases, in addition to the ordinary treatment give Van Cott's or some other polyvalent vaccine or serum. Always look out for auto-intoxication, keep the bowels in the best of order and eliminate any extra-ocular source of infection that can be discovered. In particular look out for infections of the accessory sinuses, tonsils and teeth. Some such treatment as the foregoing will bring most acute cases of iritis to a satisfactory conclusion. But there is a form of spontaneous chronic iritis, occurring most commonly in women, with the microscopic features of sympathetic ophthalmia, which sometimes, in spite of all treatment, slowly makes the victim blind. I have not seen more than half a dozen such cases and I hope that none of them will come your way.

DISCUSSION.

Dr. Gifford has given one test for noting congestion of the superficial blood vessels. Another observation easily made is to not whether the blood vessels become more or less prominent as they approach the corneal margin. If they are very much congested at and around the corneal margin and seemingly are almost normal as they approach the cul-de-sac, the lesion must be in the cornea or deeper seated in the eye. On the other hand, if the vessels are congested as they leave the culdesac and approach the normal as they near the cornea, the trouble will be in the conjunctiva.

If one is confronted with an eye condition simulating an iritis and is unable to tell whether he has a slight congestion of the iris or a beginning iritis, I think it a feasible plan to use cocain or homatropline so that one is enabled to better determine the amount of iris involvment, and if there is no real inflammatory process under way your patient can return to work much sooner than if atropine is instilled and it leaves the doctor on the safe side.

As to treatment, first of all the patient should be confined in a dark room and in bed as much of the time as possible. He should not be allowed to walk the streets with a tight bandage over the eye for at least two good reasons: First, the secretions are generally very profuse and the bandage only keeps them in and adds to the irritation; and secondly, the exposure to light and the use of the unaffected eye are a source of constant irritation to the affected one, often bringing on a parozysm of pain after you have managed to get the patient comfortable.

I wish to repeat the admonition, do not be afraid to use atropine in strong solutions and keep on using it even though you do not seem to be getting results, for you are almost sure to win if you keep it up.

To keep it out of the tear ducts and thus partially eliminate the chances of its toxic effect, turn the patient on the side of the affected eye and place the drop on the nasal side, allowing it to run across the cornea and out the other side. A drop being thus instilled every minute for ten minutes and the procedure being repeated every three hours day and night. It might be well to mention here that if one cannot get any dilation of the pupil, that an iridectomy must be done when the inflammation has subsided to save the eye from a secondary glaucoma.

The use of hot fomentations often become a painful task for the one putting them on. To save the hands of the nurse the cloths may be heated in the steamer part of a steam cooker or be wrapped around a lighted electric light globe, globe and all being carefully adjusted over the eye.

The use once a day of a drop of 8% Dionin solution will oftimes greatly relieve the deep-seated pain.

DR. BANNISTER: Toxemia may very reasonably be considered a causative factor in iritis. The choroid, ciliary body and iris, or tunica vasculosa oculi, as the Latin term indicates, is the most vascular portion of the eye. The toxins in the blood stream are very liable to exert themselves upon the blood vessels of these structures and give rise to an inflammation evidenced as an iritis. Occasionally the mistake is made of the diagnosis of iritis as glaucoma, blindness following the administration of eserine.

DR. GIFFORD: The more frequent mistake is the diagnosis of glaucoma as iritis, with blindness following the consequent mistreatment. Regarding the administration of large doses of the salicylates stress should be laid upon the importance of putting the patient to bed. A man can stand about 30 grains three times a day and be up and around. This amount is sufficient if there is improvement. If not, larger doses should be used and the patient put to bed. The prognosis in iritis should never be made positively, for it is too uncertain. Syphilitic iritis generally gets well if treated good and hard. Mild cases are also generally favorable, but there is a class of slow cases not amenable to treatment. In this latter the microscopic findings are the same as in sympathetic ophthalmia. It is probably of a germ origin which may come from the conjunctival sac by a penetrating wound or which may come from the circulation. Homatropin is better than atropine in the treatment of iritis, but is much more expensive, too expensive for the country practitioner. Cocaine is not strong enough.

ACCESSORY SINUSES.

By F. S. Owen, M. D.

I feel that I am making no mistake when I say that your committee did not expect me to discuss the whole subject of accessory sinuses of the nose. The time allotted would permit at most but a superficial consideration of the subject, so superficial indeed that your valuable time would be wasted. Therefore, with your permission, I will discuss that part of the subject which I consider most important, namely, some features of its symptomatology.

Thanks to the careful and systematic study carried out by numerous rhinologists in recent years, and to the flood of publications emanating from these investigators, the symptoms of sinus inflammation are beginning to be better understood and their significance more fully appreciated. Many of the chronic headaches which heretofore have been attributed to neuralgia, eye strain, disorders of the digestive apparatus, etc., and for which all sorts of cures were formally tried in vain, often perhaps throughout the individual's whole life, are now found to be readily cured by attacking and eradicating their cause, a disease of one or more of the accessory sinuses. So, too, by reason of better knowledge and appreciation of the relation of the sinuses to adjacent organs and their intimate lymph and vascular connection with other parts of the body, their importance as causative factors of various diseases is now duly recognized; whereas, such importance up to very recent time never occurred to anyone. Notable examples are found in the various manifestations of the so-called rheumatic fever, septicemia, nephritis, pleurisy, anemia, tonsillitis, thromobophlebitis, meningitis, brain abscess, papillitis, optic atrophy, choroiditis, etc.

It is with the desire of increasing our ability to recognize the not infrequent cause of these affections that I discuss somewhat in detail the more important symptom of sinus inflammation. By all odds, from the viewpoint of the general practitioner, the most important symptom is headache. It is always a prominent symptom in the acute forms and at one time or another in the majority of the chronic forms as well.

If I discuss it to the exclusion of other symptoms, it is because it is least understood and its significance more often overlooked.

In the sinuses we have ideal conditions for the production of headache, both reflex and organic. Here we have large mucous surfaces surrounded by unresisting walls which separate them into compartments of various dimensions; the mucous surfaces of each being continuous from one to the other through orifices more or less unfavorably located for drainage. The mucous membrane of the various compartments is highly sensitized and its trigeminus and sensory nerves are intimately associated with other branches of the trigeminus nerve which supply sensation to adjacent parts of the head.

It can readily be understood by this arrangement how pathological processes occurring in the sinuses may be manifested by headache or referred pain in some portion of the head other than in the immediate region of its source. That we may refresh our knowledge of the pathological conditions which may cause headache, I will mention a few: 1—Disease of the sinus whereby the nerves are irritated or pressed upon, either by pent up secretions or swollen mucosa. 2—Growthes, hypertrophies, swollen mucosa and other pathological conditions at the sinus opening which interfere with proper aeration of the sinus, causing a negative pressure with the sinus, hence congestion and swelling of the mucosa and irritation of the nerves. 3—Hypertrophies, polypi and other obstructive lesions accompanying sinus inflammation, which interfere with normal respiration resulting in the lack of proper aeriation of the blood. 4—Local inflammatory swelling of the mucosa and ulceration with direct involvment of the nerves. 5—Suppurative processes in the sinuses with evolution of toxins and their reabsorption. 6—An inflammation involving the sinus wall, separating the sinus from the brain with extension to and causing local congestion or inflammation of the meninges. Other conditions might be mentioned, but these will suffice to show their wide range.

Of the above named conditions headache is a common and significant symptom. The character of the headache has a wide range of intensity. It may range from a slight sense of numbness or distress to sharp paroxysms of neuralgia and almost unbearable cephalalgia. It must be remembered, however, that the intensity of the pain does not always indicate the severity of the disease. Indeed, not infrequently the disease in the sinuses is so slight that it attracts no attention to the nose and its presence is discovered only after a most searching examination; yet the pain experienced may be of greatest intensity. On the other hand, the converse may be true. Extensive disease and gross pathology may exist in the sinuses without producing any noteworthy discomfort or pain in the head.

Illustrative of these two types I will recount two cases selected from many coming under my observation. B. S., 42, a minister, troubled with persistent headache for three years, pain paroxysmal and at times unbearable, frequently incapacitating him for study, had undergone all sorts of treatments without results. No symptoms referable to the nose. Examination showed only a prominent bulla ethmoidalis, moderate hyperplasia of anterior end of middle turbinal. No trace of pus and only slight mucous secretion in middle meatus. Removal of anterior tip of middle turbinal, breaking down wall of bulla, gave instant and permanent relief. U. S. M., age 36, blockage of nose and profuse purulent discharge for several years. An occasional sense of supraorbital fullness which seldom reached the intensity of slight pain. Examination showed bith meatuses blocked by numerous polypi. The operation revealed empyema of the maxillary and sphenoidal sinuses; polypoid degeneration of the ethmoid labyrinch in one side and polypoid degeneration of the ethmoid labyrinth in the other. While these two cases represent the extremes of pain in a reverse ratio to the pathological conditions involved, they are by no means uncommon. The first represents the type of cases in which the real cause of the headache is most frequently overlooked. If one will remember a few of the characteristics of headache originating from sinus disease this oversight will seldom occur. Therefore, I feel the time will not be wasted if I point out some of the prominent characteristics of sinus pain.

It is unilateral. If diffuse it will usually give a history of at times being confined to one side or of commencing on one side and then extending to the other; or if no history of such extension is given its manifestations will usually be more pronounced on the side of corresponding to the diseased sinus. It is true that in conditions producing mouth-breathing and giving rise to the absorption of toxins, the headache is liable to be diffused, but this condition is of such infrequent occurrence that it need only be mentioned in passing. It is also well to remember that the pressure of spurs, of hypertrophied turbinals, etc., in the absence of disease of a sinus may be characterized by unilateral headache, but since this so seldom occurs it only needs mentioning.

While the pain may assume any degree of intensity, it is usually neuralgic and paroxysmal in character. Its most common site is the supraorbital region corresponding to the side of the diseased sinus, though it may be felt in the vertex or occipital or intraorbital region. Its predilection for locating itself in the superaorbital region may lead to confusing it with headache from errors of refraction. In eye strain the pain is bilateral, whereas in sinus disease it is unilateral. Also in sinus headache it is neuralgic, marked by sudden onsets and relapses, increases by stooping forward and by sudden jars, characteristics usually lacking in ocular origin. Sinus pain frequently occurs in the morning and may persist upon closing the eyes on retiring, or in a darkened room, whereas, if the pain is from errors of refraction it frequently occurs in the afternoon following prolonged use of the eyes, and is relieved in a darkened room or on closing the eyes on retiring. It is interesting to note here that often disease of the sinuses give rise to headache with all the accompanying characteristic symptoms of eye strain, and that these eye symptoms disappear like magic after the cure of the sinus disease.

Its intermittency is a prominent characteristic. It may occur at short intervals each day or, deferred for several days, or again it may occur each day at a certain time, usually in the morning when it is liable to last for several hours. In the latter case it is often mistaken for malaria, and in this and in other instances it often almost indistinguishable from ordinary trigeminal neuralgia. Between the attacks of pain, intervals of complete rest usually occur though a dull tense feeling may continue.

Among other characteristics of these head pains it should be mentioned that they are intensified by anything that causes a stasis of circulation in the head, such as stooping forward, etc. This characteristic is of great significance and never should be ignored.

The tendency of the pain from sinus inflammation to manifest itself in certain defined regions of the head is substantiated by the histories and observation of a large number of cases. When it follows the rule it is of great aid to the proper interpretation and understanding of the symptom, but there are so many departures from the rule that too much reliance should not be placed upon it.

In acute maxillary sinusitis the pain is usually located directly in the sinus and incidentally I will say that whenever in the course of an acute coryza or influenza pain is felt in the region of the sinus, the sinus itself is involved. In the chronic suppurative form, however, in nine cases out of ten in the writer's experience, the pain is located in the area of distribution of the supraorbital nerve in the side corresponding to the diseased sinus. In both acute and chronic forms of frontal sinusitis the pain is most frequently confined to the supraorbital and immediate region of the sinus.

Inflammation of the ethnoid cells may give rise to deep seated pain between the eyes which may radiate to the region of the orbit and vertex. Inflammation of the sphenoidal sinus also gives rise to a vaguely deep-seated pain which may radiate to the temples and vertex or to the occipital region.

While this is a fair representation of the typical sites for the individual manifestation of pain arising from sinus inflammation, as a matter of fact it may quite as often—chronic maxillary sinusitis excluded—be referred to any portion of the head without reference to the location of the sinus.

From the foregoing it will be seen that it should be the part of the physician's routine to make a careful and searching rhinoscopic examination in all cases of persistent headache which come to him for treatment. In making this examination he must bear in mind that it is not always a gross lesion that causes the headache, but also not infrequently an apparently insignificant lesion that would easily escape the notice of a superficial examination.

The object of this paper is attained if I have succeeded in stimulating the interest in sinus headache that its importance deserves. As the other symptoms hold only a minor relation to the subject sought, and as our time allowed is now consumed, their discussion will be omitted.

TREATMENT OF OTITIS MEDIA.

By H. B. Lemere, M. D.

My remarks will apply to Otitis Media Purulenta Actua the O. M. C .A. of the Clinics. I intend to call your attention to a few points in diagnosis and to dwell more at length on treatment.

Any attempt to obtain a view of the membrana tympani by direct illumination is futile and the head mirror and ear speculum are absolutely necessary. The light may be taken from artificial light of any kind and the best being a frosted electric bulb or an oil lamp with a large flame or it may be taken directly from the sun or better from some white surface on which the sun is shining.

The drum may show any degree of inflammation.

(1) It may simply show the vessels running to it from the external auditory canal. The principal of these are from above running down along the side of the handle of the mallens.

(2) The congestion may be increased and blebs form.

(3) The whole drum may be red and pushed out by the pressure within the middle ear.

(4) There may be a perforation of the drum.

Pain of course is one of the constant features and because nature is kind and heals many of these cases with little or no attention there is a disposition among the careless to consider earache of only slightly more moment than toothache. "Only an earache is still a somewhat popular phrase." Such carelessness, however, may result very disastrously and is altogether inexcusable. In a severe attack for the first few days the pain and tenderness generally involve the mastoid and the glandular region just below the ear. In many and perhaps all of these severe cases the infection actually extends to the artrum. This infection does not necessarily mean bone necrosis nor that the limits of complete resolution have been passed. Many times without doubt at this stage further involvement of the mastoid with necrosis can be averted by proper treatment of the middle ear. The nature and quantity of the discharge is an important factor in deciding the further course of the disease. Of the infections the bacillus capsulatus mucosus is of the most virulent and least liable to resolve; the pneumococcus streptoccus staplylococcus and influenza bacillus are the bacteria most frequently found in middle ear affections.

Pain varies. In children it is more spasmodic and violent. In adults it is more continuous. The pain from an influenza infection is frequently prolonged. Even after a free opening of the membrane tympani and good drainage severe pain may continue for several days. In tubercular infections on the other hand the congestion may hardly be noticeable, but the distruction and necrosis be very great.

The extent of the deafness during the inflammation will depend on the violence of the inflammation with much secretion and pressure will produce marked deafness. A swelling of the mucus membrane round the stapes and over the round window by interfering with the conduction vibrations to the labrynth will produce deafness.

The temperature may run from normal to 102 to 103, according to the absorbtion and the extent of the infection in the nose and throat. A continued high temperature after the nose and throat have cleared will indicate extension of the infection to the mastoid.

Restleseness at night has been a most useful indication to me of the extension of the middle ear infections to the surrounding cells and I find as a general thing that as soon as resolution sets in the patient spends a good night.

The treatment indicated primarilly, is to establish good drainage as soon as possible and to maintain it. If the opening is already there but insufficient, it should be enlarged. If the membrana tympani has not already ruptured a free incision posterior to the handle of the malleus should be made. If the discharge is profuse and serus, irrigation is not necessary for the first two days. After this the discharge becomes thicker and it is better to wash out the canal with a weak antiseptic solution.

In children many cases of abscess of the middle ear may be prevented by prompt and liberal dose of castor oil administered as soon as the child begins to cry with the earache. This probably by its depletive action allays inflammation and allows drainage as the tube in the child is much shorter and more open than in the adult and drainage from the middle ear to the throat frequently takes place in children. In adults the tube is longer and not so patulous and drainage through it is not so frequent.

Politzer advises the use of inflation during healing but the general opinion among otologists is against this. There is a feeling that the pus may be driven by the current of air into the mastoid cells. The experiments of Young, Milligan and Schultz shows that with a small perforation this actually takes place, while with a large free perforation there is no material driven into the mastoid cells.

The question of heat and cold applications will also always be a debatable point. General tendency seems at the present against the prolonged use of cold. If it accomplishes anything beneficial it does so in the very first stages of a violent inflammaation and should not be used after the third day. In theory after this time it would prevent the inflammation spreading to the surface and this actually has been my experience in a few cases where prolonged cold had been applied. I found the symptoms masked and while superficially there was no pus formation and breaking down the infection had traveled into the deeper and more vital structures. In all irrigation of the ear the water should be as hot as is comfortable to the patient and care should be taken that after irrigation all water is removed from the canal, otherwise it may not only cause an annoying excoriation of the epithelium of the canal. When the discharge is subsiding and resolution progressing favorably the canal sometimes becomes tender from the irritation of the irrigations. It is often desirable at this stage to make the irrigations less frequent and protect the canal epithelium by the in sufflation of boracic acid powder. In order to assist drainage sometimes small strips of ioodoform or bichloride gauze are placed in the ear canal. These act as a wick and conduct the discharge outward. I use this method only infrequently and usually secure drainage by irrigation. Milligan advises suction in the external auditory canal in order to aid drainage. With this I have had very indifferent success and do not employ it any more. With an otitis media, however, drainage through the Eustachian tube I consider suction along the Eustachian tube of great avantage. This is accomplished by applying the vacuum to the nasal cavities and on swallowing the suction extends through the Eustachian tubes and middle ear.

In acute stages of otitis media the use of the vaccines is contradicted. It is only when the violent symptoms have subsided and the discharge persists into the third week or later that the vaccines are beneficial. This stage belongs really to the subacute type and is not without the scope of this paper.

After good drainage has been secured and pain still persists there is no more beneficial drug than aspirin. This drug aids very greatly in moderating the inflammation in addition to its anodyne properties.

In conclusion I would urge that the old saying, "only an earache" be forever discarded and a realization obtained of the danger of pus in the midde ear and the urgency for prompt drainage and careful treatment.

DISCUSSION.

DR. LINDQUIST: Persistent earache may not be from otitis media. The throat shold first be examined for infection. The pain may come from the teeth, especially in children, and be referred to the region of the ear. A neuralgia may give rise to the pain. If there is no inflammatory process in the ear the ear drum will not be inflamed and the hearing will not be impaired. The question of the indications for a paracentesis always comes up. If the symptoms do not yield to medicinal treatment it is indicated, whether or not the ear drum is bulging. The drum is not so often seen as thought. A bleb on the drum stimulates a bulging but the function is not impaired. Middle ear disease is nearly always associated with a mastoid involvement if it does not clear up following paracentesis. In all cases general treatment should be combined with local treatment.

DR. BANNISTER: Constant heat deep against the drum membrane is the most efficient means of stopping a beginning otitis. The irrigataions should be as hot as can be borne. In case of lack of facilities a teapot can be used for this.

DR. B. W. HALL: More mistakes are made in otitis media than in almost anything else. A fountain syringe can be used for irrigation. Question of whether there is any temperature indication for perforation of the ear drum?

DR. GIFFORD: A medicine dropper is very good for deep irrigation against the ear drum. A fundamental principle is to never put cold water into the ear except for diagnostic purposes. Cold on the outside masks the symptoms. The puncturing of the drum is indicated by the feeling of the patient. If in spite of treatment the pain continues then puncture. In all cases sodium salicylate or atphan is given from the beginning.

DR. ——————: A sign often relied upon in infants is picking at the ears. Attempts to see the ear drum are not very successful. The high frequency vacuum tube in the ear sometimes gives good results. It seems to be bactericidal.

DR. TROSLER: The high frequency current has largely a hyperemic effect similar to hot water.

DR. SCOTT: Question of the use of the glycerin and phenol solution in the ear?

DR. HOMPES: As a rule it is not necessary to strike the tympanic margin in paracentesis. More care should be taken to prevent unnecessary damage to the drum. The discharge should stop in a week or two. If it does not more heroic means should be taken, the mastoid operation and removal of the tonsils and adenoids.

DR. LEMERE: Prolonged heat may lead to maceration. The temperature indication is not reliable for it may be due some other process as an exanthem. Ordinarily the ear itself does not cause high temperature. The feeling of the patient is about the best guide. In children at the onset a good big dose of castor oil often relieves. The rules for paracentesis in children and in adults are different. The cases in children are generally milder. In the cold water diagnostic test the temperature is 72 degrees which is not really cold water. Hence this is not very liable to do damage to the ear. The infantile ear drum is almost horizontal which adds to the difficulty of seeing it in the small canal. Laudanum, carbolic acid and sweet oil is a good combination for use in the ear. The refinements of paracentesis are not always possible due to the size of the canal and to movement. Where the patient jumps just as the knife is ready to be inserted the operation may be completed sometimes by the sense of touch and location.

Rotunda of Anatomical Laboratory

Men's Rest Room

TREATMENT OF HAY FEVER.

By W. P. Wherry, M. D.

The treatment of hay fever has ever been a complex problem. Hay fever so described nearly a century ago, has come down through the decades, holding its victims well within its grasp and, until recently, our efforts at relief and cure have proven to be ineffective, or at best, only palliative.

Sometime between 1856 and 1877, Blackley suggested the thought that possibly the pollen of plants was the exciting factor in the production of this disease, and during this period, with this thought in mind, he experimented extensively with fairly definite, and as we know, positive results.

Later, when infectious theories was the order of the day, Pasteur and Koch advanced this theory to the disease, and although this hypothesis was accepted for many years, yet today all the postulates promulgated by them have been largely discredited.

It remained for Dunbar and his coterie of workers in 1903 to prove conclusively that the pollen of plants, especially that of ragweed and goldenrod, was the exciting cause in typical hay fever. Dunbar was able by injecting an extracted pollen toxin, to cause a typical attack of hay fever, in susceptible patients at any time of the year. And from this point it was only a natural conclusion that a serum could be elaborated, that used according to modern immunological methods would serve the therapeuses. Dunbar was able to do this, and in his hands, the results obtained, would warrent the assumption on his part, that the specific treatment had become a reality.

That the results obtained by Dunbar have not been realized by the profession at large, has been ascribed to various reasons. First, few of us being properly acquainted with the intricate problems to be thought of in immunizing a patient, have been more or less faulty in the proper technic, and naturally the serum improperly used, would be fraught with an equally indifferent result.

The second reason, and I believe this to be the real reason of failure, is that the stock serum does not represent the proteolytic properties needed in different localities, to be more explicit, the pollen from which the extract is made must be gathered from the locality in which the patient contracts the attack.

It is rather an accepted fact that hay fever is in a way a regional disease, in so far as, that a patient having an attack can remove to a distant locality, and usually is relieved, or by staying away from the affected locality, he does not contract the attack. This phenomena, would warrant the assumption, that although the pollen is botanically the same, yet pathogenically it is not the same for different individuals in widely separated localities. Accepting this hypothesis we can readily explain the differing results of Dunbars Pollantine, and also we would naturally expect the maximum result, to be obtained from pollen, gathered from the region where the patients contract the susceptability.

This idea has been taken up by Dr. Manning and myself, it not being original with us, however, and in our series of cases Dr. Manning will show results that seem to warrant, and to prove, the correctness of the idea.

There are certain factors, that must be carefully considered in deciding upon the treatment procedure of a given case of hay fever, because although the seriologic phase is the specific, yet there are other factors that can assist, or retard, materially, the effect desired from the serum injections.

In attempting to analyze the situation we will grant that every individual in a given community will, during the hay fever season, inhale a given and almost equal amount of pollen, yet the greater majority of them go on unaffected, while in a small number of pollen protein finds an acceptable host. We cannot explain the invasion in the sense, that we explain an attack of typhoid fever, where the infection multiplies within the host, because pollen cannot so multiply, therefore its action must rest on the theory of parenteral proteolysis, or upon an elaboration of a free toxin, or upon both factors combined. In attempting then to analyze an hay fever susceptibility, and to work out the probable success in seriologic injections, it seems the most logical reasoning to accept this hypothesis, as our fundamental, and on this basis look to see what influences other than pollen assist in the anaphylactic action of the pollen, for a hay fever attack is essentially an anaphylactic manifestation.

Koessler says that it has been known for a long time that the normal nasal secretion shows a decided bacteriological power there is no doubt that this is largely due to proteolytic enzymes whose presence has been experimentally established. This proteolytic enzyme of the nasal secretion in most people gradually splits the pollen like any other foreign protein into harmless products. This cleavage proceeds slowly, the poisonous group contained in every protein molecule, therefore, at any time is present only in small concentration, and thus rendered inert, as cleavage proceeds. The absorption of protein through the nasal mucous membrane, is under normal conditions exceedingly minute. practically all, however, under certain conditions, that interfere with the normal digestive function of the nasal mucosa, foreign protein, pollen included, will be reabsorbed in sufficient amount to lead to sensitization. These conditions, broadly grouped, may be first, a nasal secretion insufficient in amount of proteolytic enzymes, due to alterations in the nasal secretory glands, induced by pathology, present or physical deformity. Second, stenosis of nasal passages through enarged turbinates, or other obstructions leading to excessive accumulation of inhaled matter, and thus to increased reabsorption. Third, the accidental inhalation of an amount of pollen, exceeding the protective function of the exposed nasal mucosa, especially when the nasal secretion is insufficient or altered.

If, therefore, we are to find a possible reason for hay fever susceptibility, we must look well to the nose. this organ should be studied carefully not only from a pathological standpoint but especially from an altered, a deficient, physiological view. A careful study of the nose is all the more necessary if we are to get the maximum result, from the serum injections, because experience shows quite positively that pus foci in the nose will negative its action.

Another source of trouble in outlining the treatment procedure in hay fever is the psychic or neurotic element of the individual, just what this equation is or how much of a factor it is, is not definitely known, that such an equation is of moment must be granted and shold be carefully considered.

The most dreaded sequelae of hay fever is asthma. This symptom usually does not develop until several years after the sensitization of the nose has developed. That it is a similar proteolytic process, to that of hay fever, is accepted, and hence should be amenable to the same procedure of treatment. Quite frequently, as the tendency to asthma develops, the tendency to asthma develops, the tendency to hay fever, per se, diminishes, and eventually oftentimes the asthma is the only symptom of the pollen sensitization. Yet the seriologic treatment seems to be just as effective, in this stage, as in the typical nasal manifestation.

The time allotted me, will only permit of this short resume, and therefore it has only been possible to skim over the surface of the question involved. I know there is room for argument in the postulates expressed, however, if the demonstrable facts etiologically are correct, then the theory of the treatment is correct, and if we can rely upon the accepted theories of immunity, the serologic treatment of hay fever offers the best chances, so far as we yet know, and in conclusion I will feel satisfied if I have impressed you sufficiently with the procedure, that Dr. Manning's suggestions will be taken up, and especially with the logical thought that to get the maximum results, with serum, the pollen from which that serum is made, must be gathered in the locality where the patient lives.

TREATMENT OF HAY FEVER.

By E. T. Manning, M. D.

Active Immunization.

I can best introduce this subject by quoting from Koessler: "The clinical observation that the susceptibility to hay fever decreases in some patients, with increasing years, suggests that an increased tolerance may be acquired during life through the annual inoculations applied by nature. That this immunization is not accomplished oftener is probably due to the capricious method of these inoculations, which are applied several times a day for many weeks, and must lead only to the exhaustion of any protective substances formed. The conception of pollen disease as a protein sensitization primarily localized in certain tissues, suggested the possibility of establishing this higher tolerance for pollen protein by increasing the area of sensitization by subcutaneous injections of pollen extracts."

Results have undoubtedly justified this assumption of Koessler. An explanation of the mode of action is, however, extremely difficult. Koessler's explanation follows: "Owing to some pathology of the nasal mucosa, the normal secretion containing specific ferments is destroyed, and a parenteral intake of foreign protein results. This leads to a two-fold effect; it injuries the epithelial cells of the mucosa and the endothelial cells of the finer capillaries in such a way that the mucosa remains permanently in a state of increased permeability for the protein, also it brings about a new function of these cells, consisting in the production of a specific protective ferment directed against the specific protein—in other words, the local tissue becomes sensitized. When the same pollen protein which caused the sensitization again reaches the sensitized cells—in the flowering season of the next, or any following year—the sensitized cells of the conjunctival and nasal mucosa pour forth the specific enzyme, which readily attacks and dissolves the protein which in the state of solution can be readily absorbed. The effects and symptoms evoked by this process depend largely on the speed with which the pollen protein is broken up, and thus on the concentration and quantity of the poisonous fraction. The first symptoms are, therefore, local. The pollen reaching the mucosa of the conjunctiva, nose, and mouth, is split, and the poison reaches the peripheral nerve endings, producing sneezing, itching and burning in the eyes, nose and palate, followed by vasodilation, hyperaemia, and inflammation on more extensive absorption."

Without doubt, the proper way to approach the immunization problem would be from a prophylactic side, as it may readily be understood that any protective bodies formed by injection of pollen extracts during the flowering season, would very soon be used up in caring for the continual addition of protein coming from without. An attempt should be made to establish the immunity before the onset of the hay fever season, that is, before the pollen is formed, about August 15. It has been established by repeated experiment, that the pollen of some of the members of the botanical group, ambrosia, is the causal agent in hay fever. These plants are, notably, the ragweeds, the asters, the goldenrods and the marigold. The ragweed seems to be the representative of the group. It is a significant fact, and one easily demonstrated, that the onset of hay fever symptoms is exactly coincident with the forming of the pollen of ragweeds. Consequently, the pollen of the two varities of ragweed—the giant and the dooryard types—has been used exclusively in the attempt to establish immunity.

The technique of preparation of the extract is as follows: 10 mg. of pollen of each variety is triturated with sterile silicon in an agate mortar; 20 cc. of a sterile salt solution ten times stronger than a physiological, is then gradually added, and thoroughly shaken. The suspension is placed in the incubator for twenty-four hours, and again shaken. The mixture is then centrifuged at a high rate of speed, and the supernatant fluid pipetted off. This solution is a dilution of one to one thousand, and from it all others are prepared. First, it is diluted ten times with sterile distilled water, to which has been added 25 per cent phenol, and the salt solution is then a physiological one, and is a dilution of one to ten thousand. This dilution, and all lower ones, are unstable and deteriorate by progressive proteolysis, into a toxic product within ten days. The concentrated one to one thousand solution is more stable, and will keep, on ice, for about three weeks. It is needless to say that all manipulations must be carried on with aseptic precautions, and I have made it a rule never to inject a solution until after plating on agar.

The unit of pollen toxin, adopted by various workers, has been of different size. I have adopted as a unit the amount of toxin contained in one one-millionth gram protein, or that contained in 1 cc. of a dilution of one to one million.

Koessler reports very gratifying results in his attempts at immunization, which have extended only over a short period of time. I was unable to obtain any ragweed pollen before the onset of the hay fever season this year, consequently, my attempts at immunization have been confined to patients already suffering from the disease. I have treated, in all, twenty-one cases. Of these. fourteen have been objectively and subjectively relieved. In the other seven, the treatment was incomplete, for one reason or another. Two of these seven showed no reaction. either good or bad. Four more were certain that their attacks were lighter. One lady was undoubtedly made worse—a result which I think was due entirely to an error of judgment on my part, in giving her a large dose without gradually working up to it. Three of the cases had a bad asthma complicating. Two of these were completely under control, and the other one much relieved.

I started all patients with a dose of one unit, and gradually increased the dose every two to four days—finally, in some cases, reaching seventy-five units. I feel that I lost much valuable time in the early part of the treatment, in being too cautious, as I realized the possible alarming effect which might be produced by too large a dose of the vegetable poison. I do not believe a dose larger than seventy-five units can be given without producing unpleasant symptoms.

While the number of cases reported is much too small to warrant definite conclusions, I feel that the results obtained more than justify a further trial, with the hope that even a better result may be looked for, when the injections can be given before the onset of the hay fever season.

DISCUSSION.

DR. CLYDE MOORE: The treatment was experienced in my own case. The first two injections produced no effect on account of the smallness of the dose at the start. After that about eight injections were made with a strong reaction after each the symptoms disappeared completely and there has been no attack since. That this disease is not a neurosis is evidenced by its occurrance in babies.

J. B. POTTS, M. D.: I wish to compliment the gentlemen on their contributions to this very interesting subject. It seems to me the topic is most timely, as the disease is very prevalent in this locality, and heretofore all our efforts for its relief have been practically barren of result.

One point to which I take exception in Dr. Wherry's paper is the statement that the disease is to a considerable extent a neurotic character. I think hay fever is a well defined disease, produced by specific irritant and should be classified and considered the same as typhoid fever, urticaria, etc., and that the neurotic symptoms will become less as our scientific knowledge of the disease increases.

I am a sufferer from the plague, and feel quite sure that my imagination plays a very small part in the development of the disease each year. It has been stated by some writers that hay fever is much more prevalent among nervous and high strung people. However, in my own practice, I have found it quite as frequently in farmers and railroad employees.

Prof. Dunbar demonstrated that he could produce a typical attack in a susceptible individual any time of the year by instilling a few drops of weak infusion of rag weed pollen into the nose or eye. The eye becomes immediately red and suffused with tears; mucous membrane of the nose swollen, profuse watery discharge and violent sneezing. He further excluded the possibility of neurosis by taking two clear solutions and instilling a few drops of one or the other into the eye of a number of people in the same room who are all sensitized without their being aware of what solution was used. Without exception, those into which the pollen infusion was instilled gave the characteristic reaction, and those into which the normal salt was instilled, were unaffected. After many experiments along these lines, he worked out a plan of immunization by vaccines, which while fairly successful in his hands, has not met with an equal success in this country. The foundation work as done by him is, I think, fully proven to be correct. However, I think his application of the principal was wrong, and that immunization can not be produced by vaccines, but that it must be produced as Dr. Manning has stated, by individual elaboration of anti bodies by each individual. While the application of this principal is still very new, I am sincerely of the belief that the dawn of the day for the relief of hay fever is at hand.

AMERICAN MONTE CARLO.

It was certainly a sporty bunch of long-headed gamblers who gathered at Monte Carlo to win fame and fortune from the whirling wheels. All were loaded with an abundance of the "long green" and there wasn't a piker in the bunch. Roulette, chuck luck, confidence games, bowling and plain hold-ups were of frequent occurrence. Several police raids were only averted by prompt action on the part of the fixing committee. Of course all went home broke, but vowed to come back next year and bust the banks. Drs. Lieber and Moon are certainly to be congratulated on the spirit with which the whole affair was carried out. L. W. Morseman, '06, won the prize, a beautiful "hypo" case.

WEDNESDAY, OCTOBER 14, 1914

CLINIC.

Methodist Hospital, Wednesday, October 14, 1914

By A. F. Jonas, M. D.

Case 1. It gives me great pleasure to show a case this morning that is rather unusual for this section of the country. We find a rather advanced type of rhachitis in the little girl, aged twelve.

Our first impression is that of a child of defective development. She appears small for her age. She was admitted to the hospital October 13, 1914. She has three sisters and one brother who appear to be normal and present none of the physical characteristics of this child, one of her sisters died of typhoid at the age of ten years.

We find in her personal history that she had catarrhal pneumonia at the age of three years. In the same year she had an attack of vomiting and diarrhea lasting one week. This appeared to be epidemic in the neighborhood. Soon after a subsidence of the gastro-intestinal disturbance, it was observed that both thighs were short and bowed outwards. This condition became more pronounced as time went on. She learned to walk rather late, and has appeared well in every other way. She began to attend school rather late, has passed through the first grade and now appears to learn easily.

As we expose her and take note of her physical appearance, we would say that she is stunted in her growth. She is undersized. We find her frontal eminence more prominent than common, giving her the appearance of having a large head (caput quadratum.) Her fontanelles are closed, the parietal eminences are large. She has no adenoids or enlarged tonsils. Her thorax seems flat on each side, but the general impression is that it is deep in proportion to its length. Her respirations are rather shallow, about thirty per minute. Her lungs are normal. Heart beats 100 to 110 per minute, but its size and sounds are normal.

When we examine the chondro-costal articulations, we find thickenings suggesting the well known rosary. The arms are short and the hands are small. The bones of both arm and forearm are thicker than normal. The epiphyses at the wrist are thickened, forming the so-called double joints.

The abdomen is prominent, somewhat tympanitic, but her gastro intestinal functions appear normal. The spleen does not appear to be enlarged. Her pelvis, in its transverse diameter, appears small. Both thigh bones are short, thick, especially at the lower end and curved outward to an unusual degree. The tibia and fibula of both legs are short and thick, especially at both ends and curve outward to an unusual degree, so that the entire lower extremities form the letter O when the child stands upright with both feet close together. She walks and runs about with a waddling gait. We see that we have a clinical picture of what is known as rhachitis.

This is a common disease in the large cities of Europe and to some extent in this country where living conditions are unhygienic and nutrition is prevalent. The disease usually begins between the years of one and three, sometimes as early as six years.

We occasionally have cases develop in surroundings that are healthful, where food and care are apparently above criticism as in case. You note, in the history, that the other children of the family have been unaffected. The mal-nutrition, indicated here by the absence in the bones of sufficient lime salts, is due to some metabolism defect in the child itself. In such individuals, we often find gastrointestinal troubles. The child may have been difficult to feed. The history shows that the things showed outward curvature soon after an attack of diarrhea and vomiting when she was three years of age. The mal-nutrition manifests itself by a retarded ossification, due to deficient lime salts. There is a deposition of excessive cartilaginous structure and connective tissue in and about the bones, making them soft, large, flexible and deformed. The bones become distorted under muscular action and weight bearing. There are thickenings upon the ends of the long bones at the epiphiscal lines. The fontanelles close late. There are muscular pains and sweating of the head. There may be degenerative changes in the spleen and liver. In the late stages, there is usually excessive calcification in the deformed bones and especially about the epiphiseal lines; they become abnormally heard.

The latter conditions have taken place in our case. She comes to us for a correction of the deformities in the lower extremities. As a rule we find that the vast majority of the cases, known as genu valgum rectify themselves. I have known of a number of cases, of moderate degree, that have become perfectly stroight when they were grown up. During my students days in Germany, I saw scores of children with "O" legs, who received no corrective treatment and yet it was extremely rare to see adults with noticeable deformities. Consequently I have usually advised close attention to sleeping quarters, diet and an outdoor life in the sunshine and the outcome has usually been satisfactory.

The little patient before us is an exceptional case. The bones are thick and hard. The deformities are great and the prospects for recovery do not appear to be good. Therefore, I have advised osteotomy of both femurs, which we will now proceed to do.

OPERATION.

The patient is now fully under the influence of ether, both thighs have been prepared with Tinc. of Iodine according to the Grossich method, a firm sand bag has been placed under the thigh and I will make a long incision in the outer side of the thigh so that we can divide the femur at the junction of the lower and middle third, the point of greatest deformity. Now we have exposed the bone and divided the periosteum and pulled the margins to each side. With an Ogston osteotome we will divide the bone transversely in such a way as to remove a wedge-shaped piece, the base of the wedge pointing outwards. The reason for this is, we wish to be able to accurately approximate the ends of the divided bone. You observed that the bone is very hard. It appears to be in a state of eburnation. Now you see that the bone is divided and we have removed a wedge-shaped piece. The soft parts are now sutured with deep and superficial chromic sutures. The thigh is now wrapped in sterile gauze and covered with a sterile sheet and we will proceed in the same manner with the left thigh and bone.

You have seen the left thigh bone is as hard as the first. The firm sand bag placed under the thigh has enabled us to use the osteotime with unusual vigor. We now close the wound in the same way as before.

We now carefully apply large sterile gauze pads to both thighs, reaching to the groins in an upward direction and to a point below the knees. The child is now placed in a pelvic support. The pelvis and thighs are enveloped in sheet cotton wadding. An assistant holds the child underneath the arm pits, and each leg is held by an assistant, who make downward and outward traction and ascertain if the divided bones are in opposition. The adjustment seems satisfactoroy and, I will apply a Plaster of Paris mold, making a double spica, beginning with a pelvic gridle, on a level with the umbilious, including both hips and thighs and reaching to a short distance below the knees. The joints are fixed above and below the divided bones as we do in fracture of the lower end of the femur.

Later.

The first casts were removed in about six weeks, the incisions had healed perfectly and the bones had united. Another cast was applied and removed about two weeks later. Union was firm and complete. The child began to walk. She was sent home with instructions to return later for a correction of the bones of the legs.

Case 2. Graham. Age 32. Railroad employee.

This patient is already under the influence of ether. We will immediately proceed to examine his local condition. We will omit his general history because it is unimportant in the condition for which he seeks treatment.

You will see that he has in his right groin two very noticeable enlargements that might suggest to you an inguinal adenitis, a neoplasm or a hernia. You will note that while he is now coughing, there is no preceptible influence on the enlargements, so we might exclude a hernia. One of these swellings is above the inguinal canal and one is over the cord below the external inguinal ring. There is no discoloration. The patient has stated that he has more or less constant pain so much so that he is unable to perform his daily work. I now place my hand over these swellings. I find that they are distinctly circumscribed fairly moveable, they are hard and firm, more firm than any form of glandular swelling with which I am acquainted. They are as firm as cartilage, and yet I have never encountered a a moveable cartilaginous growth in the groin. I have seen this condition several times before, and, in my opinion, we have here to do with masses of paraffin. Indeed the patient has confessed that he has been treated with paraffin injections by a so-called specialist. This method of treatment is familiar to you all, but I am sure that none of you have ever had the hardihood to inject a mass of parafine in the groin for the cure of hernia. The intention is to inject the mass into the inguinal canal for the purpose of closing it, or against the external canal for the purpose of compressing and blocking it. The men, who do this kind of work, are usually men who have failed in legitimate practice and have taken to quackery. In the cases that I have seen and have operated on, the paraffin was injected into the groin, sometimes under the skin; in one case reaching to the anterior superior spinous process of the ilium; in another four inches above the external ring and toward the umbilious; in another reaching down into the scrotum and in quantities from two to sixteen ounces. In four of my operations there were omental adhesions in the sac and the hernia had never been reduced. In two cases the paraffin partly compressed the external ring, but left enough room for an intestinal loop to slip down and become strangulated so that an emergency operation was necessary. The method is a blind one and it should be emphatically condemned.

OPERATION.

The great difficulty with these cases is that all or nearly all anatomical lines are obliterated. The operation becomes difficult if the individual is fat. The case before us is not fat, so that we may not have very great difficulty.

I now make a long incision and I am immediately upon a mass of paraffin, we dissect carefully and I open the fascia of the external oblique and you can see a white glistening mass. I enlarge the opening and I am now able to life out a hen's egg size piece of paraffin. A part of this mass overlapped the margin of the external ring. I can see a protruding intestinal loop. I find a larger mass of parafine extending from the cord toward the pubes and a third mass reaching into the upper part of the scrotum. I now open the hernial sac and I find the intestinal loop with an omental process adhered to the sac. The hernia had not been reduced before the paraffin was injected. I find here three smaller masses of paraffin which are easily removed. I will now tie the sac and drop the stump. The internal oblique is sutured to the shelving process of Poupart's ligament with five chromic gut sutures, the cord lying underneath the suture line. The fascia of the external oblique is imbricated and the wound closed with chromic gut and sealed with collodion.

Case 3. M. M., age 35, laborer. For the past year he has had pain, swelling and limitation of motion in the right knee joint. His general appearance is good. He walks with a decided limp. When we expose his knees, we find the right knee enlarged and rounded. The patella is not visible. The depressions to either side of the knee pan are obliterated. There is a swelling of the soft structures about the joint. There is no discoloration. No fluctuation of either side of the joint nor in the upper recess of it. As I take up the extremity, I can move the joint only slightly. The joint surfaces appear to be smooth. No indication of roughness or adhesions on the articular surfaces. We may say that there is no intra-articular affection, consequently we now have to do with a pathology that is outside of the articular cavity. The tenderness seems to be superficial and is confined to the joint capsule. No indications of a bone lesion. So we now have a thickening of the joint capsule to deal with. He may have had a synovitis to begin with, but the infection extended to all the soft structures of the joint though it has now subsided. The present process consists of newly formed periarticular connective tissue. This new tissue has a tendency to contract and limit the elasticity of the soft structures. Now what shall we do for this case? The indications are for massage and manipulation and I am sure if persistently carried out, we may expect a useful limb. One point must not be forgotten in the process of manipulation and that is to avoid undue force. Forcible flexion always causes traumatisms and tissue lacerations. These always retard the recovery. The tissues must be stretched and not torn.

CLINIC.

At Methodist Hospital, Wednesday, October 14th.

By W. O. Bridges, M. D.

Case I. Addison's Disease. Reported for conference by R. H. Kerr and Bessie Mason, Class 1915.

R. H., aged 21, farmer, single, negative family history. Measles and whooping cough in childhood. Recurrent tonsilitis for several winters; otherwise patient has been well, having passed civil service examination the past winter. Later had sciatica and lumbago which continued several months intermittently.

He dates his present trouble from April last when he noticed increasing debility and muscular weakness to such a degree that he was unable to work. Nausea and vomiting were somewhat frequent, seemingly provoked by exertion and quickly rising from a recumbent posture. Latterly he has attacks of syncope on making physical effort and has fainted many times. He has lost about 40 pounds in weight. Soon after the onset of his symptoms a diffuse discoloration of the skin began which has become intensified, more noticeably on the forearms, neck, areola of the nipples and the lumbar region. No cough or fever are reported, bowels regular, no edema.

Patient is tall and slender, temperature 97.8, pulse 80 weak, regular; respiration 20, blood pressure 95. General bronzing of the skin is evident with patches of greater intensity, the areola of the nipples being very dark, and streaks noticeably across the lumbar region. The inner sides of the cheeks near the angle of the mouth have discolored spots. Chest and abdominal examination are negative. The blood shows 2,900,000 reds, 6000 white cells, Hg of 50, and the urinary report is negative. Both the Von Pirquet and hypo tuberculin tests were followed by rise of temperature to 100 and 100.5.

The diagnosis of Addison's disease was based on the history of progressive muscular debility, low arterial tension, nausea and vomiting, syncopal attacks, characteristic pigmentation of the skin with mucus membrane involvement. This very combination suggests adrenal deficiency when one considers the function of the chromaffin system. The tuberculin tests would also be presumptive of tuberculosis probably involving the supra renal glands. While the prognosis may be considered unfavorable, much improvement has resulted from proper small and frequent feedings of milk, eggs, cereals, etc., rest, supra renal extract to 18 grains a day, cod liver oil and increasing doses of strychnia hypo to 1/6 grain once a day. A greater change was noted after the latter remedy was added, and since the larger doses, the patient is able to go about without tendency to syncope, he has gained 10 pounds and the blood pressure has risen to 105.

Cases II and III both have cancer of the stomach, aged respectively 58 and 3, males, one a farmer and the other a teamster. One of slowly developing pain without vomiting, the other with vomiting frequently for six weeks, without much pain. Both had lost 15 to 30 pounds in weight with increasing debility. The one longer ill was somewhat cachectic in appearance, the other not. Both had palpable tumors in the epigastrum one high up rather indefinite, the other near the umbilicus and prominent, with some obstruction of the portal circulation as indicated by marked dilatation of the abdominal veins. Both showed residual food in the stomach, absence of free H. C. L.

low total acidity and lactic acid in the test contents, and occult blood in the stool. An X-ray plate of one with the more indefinite tumor, was thought not to prove up, and an exploration was done which made the diagnosis positive. Both cases were thought to be beyond the operative stage and emphasized the importance of early diagnosis, for this is the essential in the cure of cancer by operation whether in the stomach or elsewhere. Persistent stomach symptoms suggestive of cancer, ulcer or so-called gastritis, which do not yield to a well directed dietary, and intelligent treatment in a few weeks' time, should be explored. In both cases relief of pain and vomiting, liquid diet and hydrochloric acid, pepsin and tonics are indicated.

Cases IV and V arterio sclerosis, one aged 55 with heart decompensation and urinary findings suggesting renal involvment, the other aged 60 with heart hypertrophy and high tension, 200, without albuminuria but a few hyalin and granular casts, were presented to show the result of the phthalein functional kidney test. Both were injected hypodermically with ⅙ centigram of Phthalein in one gramm of sterile water. Urine was voided every ten minutes thereafter until the urine showed the first trace of red, the time noted, and the total percentage of phthalein excreted in one and two hours. In case IV phthalein was detected in ten minutes the total excreted in two hours was 65%. In case V the first red urine noted was at fifty minutes and the total in two hours was 13%. This test indicates serious structural renal impairment in the one (case V) and almost a normal functional action in the other. We are thus better able to judge of prognosis and the need for thorough effort in treatment.

By H. Gifford, M. D.

CASE I.

A typical case of iritis under the influence of a mydriatic. Adult.

CASE II.

A very severe case of opthalmia neonatorum. This has become so rare as to be hardly practical for a clinic. Very little can be hoped for here as the case has not been brought to attention soon enough. There is extensive permanent destruction of the tissue and the most that can be expected is the possibility of distinguishing light from dark after an iridectomy.

CASE III.

This is an example of a more terminal condition of gonorrhoeal opthalmia in a negro girl about 10 years old. Both eyes have been affected. The right cornea is completely opaque. The left cornea has a central opacity. But in the right eye there is a tendency to inflamation which is liable to spread to the other eye and cause total damage there. Hence an enucleation of the right eye is indicated.

In the treatment of these cases a 4% silver solution is the best, but kept off the cornea as much as possible. A more or less specific for the pneunococcus is optochine or ethyl-hydrocuprin, one per cent solution used frequently. It also has been claimed to act strongly upon the gonococcus. Cleanliness is very essential in treatment of these cases.

CASE IV.

Adult. The left eye was destroyed a year ago. Recently a piece of steel entered the good eye. The cornea was wounded which gave rise to a corneal ulcer. Practically all of the cornea was destroyed. An irridectomy was performed with the hope of furnishing a little peripheral vision.

A danger here is the liability of the development of high tension or secondary glaucoma. There has been pain and stretching over the wound, and if it gets no better enucleation will be performed which will at least make the patient comfortable. This example will serve to emphasize the importance of one-eyed people wearing glasses for protection of the sound eye.

CASE V.

Adult. A corneal ulcer caused by a switch of a horse's tail. It is three or four weeks old. The upper half of the cornea is destroyed and there is now no anterior chamber. Tri-chloracetic is applied, full strength. For this a finely pointed swab is used and the ulcerated surface touched. Tincture of iodine is being used more. One objection is that it evaporates so rapidly. The majority of the pneumococcic ulcers are deep which aids in their diagnosis. Trouble is also generally found in the tear passages along with the ulcer.

The treatment with iodine in a bad case of corneal ulcer should be twice a day along with atrophine and heat. The anterior chamber should generally be opened.

CASE VI.

Adult. A mild case of corneal ulcer caught early. Usually a very reliable guide to the progress in a case is the feeling of the patient. Iodine treatment and anterior chamber opened. The infection practically never goes in.

CASE VII.

An old lady, who has gradually gone blind with no eye pain and only slight headache. The eyes appear perfectly normal with no opacity of the lens. The diagnosis is glaucoma. It is liable to be diagnosed cataract until it is too late to help the patient any. The tension is a little high, the pupil reacts.

Formerly in this case irridectomy was done, but with poor results. Recently a trephining operation is used. A flap of conjunctiva is dissected free from the cornea and then a hole bored through into the anterior chamber. A portion of the iris usually comes out of the opening and is snipped off. The flap of conjunctiva turns down but a permanent sub-conjunctival fistula is left for the escape of fluid. In cases as old as this one very little improvement is expected.

CASE VIII.

Enucleation of eye of case III, the negro girl. The operation is simple so that anybody can do it.

ANNUAL BUSINESS MEETING.

Wednesday Noon, October 14th.

On Wednesday following the noon-day luncheon the annual business meeting was held. A. R. Knode, '04, president, presided.

Roll of officers showed the following officers present:

A. R. Knode, '04, Omaha, president.
I. S. Trostler, '04, Chicago, second vice-president.
R. A. Dodge, '01, Omaha, secretary-treasurer.

Minutes of previous annual meeting read and approved.

The following secretary-treasurer's report for the year ending October 14th, 1914, having received the endorsement of the finance committee was read and upon motion adopted as read.

The following is the report:

Balance, Oct. 15, 1913		$205.55
Dues collected:		
301	C. H. Root	2.00
302	G. W. Bartlett	2.00
303	A. B. Lindquist	2.00
304	Herman Bocken	2.00
305	A. A. Robertson	2.00
306	W. H. Heine	2.00
307	Morris Neilsen	2.00
308	A. Johnson	2.00
309	E. M. Ware	2.00
310	G. W. Pritchard	2.00
311	A. H. Holm	2.00
312	C. C. Tomilson	2.00
313	C. W. M. Poynter	2.00
314	G. L. Strader	2.00
315	A. P. Fitzsimmons	2.00
316	Rose H. Rice	2.00
317	Edgar Christy	2.00
318	W. A. Rush	2.00
319	G. F. Bartholomew	2.00
320	R. M. Wildish	2.00
321	M. A. Nye	2.00
322	S. G. Allen	2.00
323	Olga Stastny	2.00
324	D. B. Mullikin	2.00
325	F. D. Haldeman	2.00
326	Geo. A. Alliband	2.00
327	J. H. Kerr	2.00
328	P. M. Pederson	2.00
329	L. R. Markley	2.00
330	M. B. McDowell	2.00
331	P. E. Koerber	2.00
332	B. A. Adams	2.00
333	R. A. Dodge	2.00
334	J. E. Olsson	2.00
335	I. L. Thompson	2.00
336	F. W. Karrer	2.00
337	D. F. Lee	2.00
338	E. W. Arnold	2.00
339	L. L. Henninger	2.00
340	Louis Swoboda	2.00
341	C. S. Ericksen-Hill	2.00
342	E. L. Brush	2.00
343	J. M. Patton	2.00
344	R. C. Knode	2.00
345	J. B. Potts	2.00
346	W. P. Wherry	2.00
347	C. W. Mason	2.00
348	Harry L. Mantor	2.00
349	C. L. Wills	2.00
350	A. A. Fricke	2.00
351	J. H. Sayer	2.00
352	E. D. Putnam	2.00
353	G. S. Betts	2.00
354	B. F. Jeffers	2.00
355	G. C. Shockey	2.00
356	A. A. Bald	2.00
357	G. B. Potter	2.00
358	C. J. Miller	2.00
359	T. M. Gilmore	2.00
360	Edw. L. Rohlf	2.00
361	J. F. Premer	2.00
362	T. P. Livingston	2.00
363	J. S. Livingston	2.00
364	A. M. Tower	2.00
365	A. M. Tower	2.00
366	J. A. Fuller	2.00
367	W. L. Morrill	2.00
368	A. R. Knode	2.00
369	J. B. Potts	2.00
370	W. N. Anderson	2.00
371	W. P. Wherry	2.00
372	E. H. Smith	2.00
373	I. S. Trostler	2.00
374	A. E. Lane	2.00
375	B. F. Jeffers	2.00
376	H. J. McArthur	2.00
377	J. M. Woodward	2.00
378	H. W. Francis	2.00
379	J. E. Miesenbach	2.00
380	J. F. Kohout	2.00
381	E. A. Van Fleet	2.00
382	C. S. James	2.00
383	E. J. Updegraff	2.00
384	Frank Jensen	2.00

385	B. W. Hall	2.00
386	Geo. Mogridge	2.00
387	C. Rubendall	2.00
388	A. E. Westervelt	2.00
389	H. D. Burns	2.00
390	H. B. Lemere	2.00
391	B. W. Christie	2.00
392	E. L. Bridges	2.00
393	L. W. Edwards	2.00
394	Clyde Moore	2.00
395	F. W. Johnson	2.00
396	W. P. Wherry	2.00
397	G. R. Gilbert	2.00
398	F. H. Hanson	2.00
399	O. H. Margaret	2.00
400	Chas. F. Moon	2.00
401	G. C. Gramlich	2.00
402	W. H. Taylor	2.00
403	T. E. Sample	2.00
404	Mary L. Tinley	2.00
405	R. B. Armstrong	2.00
406	A. O. Peterson	2.00
407	H. A. Wigton	2.00
408	J. H. Kerr	2.00
409	O. W. Wyatt	2.00
410	C. W. M. Poynter	2.00
411	I. S. Cutter	2.00
412	Chas. Lieber	2.00
413	A. W. Fitzsimons	2.00
414	J. R. Nilsson	2.00
415	B. A. Young	2.00
416	J. F. Hyde	2.00
417	C. R. Kennedy	2.00
418	R. J. Murdock	2.00
419	G. H. Rathbun	2.00
402	James Bisgard	2.00
421	S. A. Preston	2.00
422	J. F. Benning	2.00
423	F. A. Burnham	2.00
424	F. W. Scott	2.00
425	Herman Bocken	2.00
426	Geo. Buol	2.00
427	W. L. Hummer	2.00
428	C. C. Morison	2.00
429	J. J. Hompes	2.00
430	J. C. Decker	2.00
431	H. O. Munson	2.00
432	J. M. Patton	2.00
433	G. B. Potter	2.00
434	L. W. Morsman	2.00
435	Chas. D. Eby	2.00
436	Frank Tornholm	2.00
437	A. B. Lindquist	2.00
438	W. C. Moodie	2.00
439	C. F. Morsman	2.00
440	J. H. Goodnough	2.00
441	Geo. A. Alliband	2.00
442	A. C. Stokes	2.00
443	W. S. Rieley	2.00
444	R. A. Dodge	2.00
445	J. B. Redfield	2.00
446	G. E. McDonald	2.00
447	Geo. A. Morrison	2.00
448	J. D. Reid	2.00
449	L. T. Sidwell	2.00
450	Frank E. Osborn	2.00
451	R. C. Panter	2.00
452	H. G. Penner	2.00
453	J. C. Waddell	2.00
454	R. J. Sterns	2.00
455	C. L. Lemar	2.00
456	S. H. Smith	2.00
457	M. P. Sward	2.00
		$314.00

From other sources:

J. M. Patton, Ch. 4th An. week	$ 57.33
A. F. Jonas, M. D.	20.00
Alfred Schalek, M. D.	10.00
J. M. Aikin, M. D.	10.00
H. Gifford, M. D.	20.00
J. E. Summers, M. D.	10.00
H. M. McClanahan, M. D.	10.00
F. S. Owen, M. D.	20.00
W. F. Milroy, M. D.	10.00
B. B. Davis, M. D.	20.00
A. C. Stokes, M. D.	20.00
W. O. Bridges, M. D.	20.00
University of Nebraska	50.00
	$277.33
BalanceOct. 15, 1913	205.55
Dues collected	314.00
	$796.88
Expenditures	672.43
Bal. in Sec'y-Treas.	$124.45

Disbursements:

Myrtle A. Kelley, Sten. 4th Annual	$ 90.00
500 letterheads and envelopes	10.00
Postage "proceedings"	26.60
Printing and cuts "proceedings"	475.75
500 envelopes for "proceedings"	1.75
General postage and exchange on checks to date	9.58
Postage on program 5th Annual Week	5.75
Salary	50.00
	$672.43

On motion report adopted and placed on file.

Chairman Patton of the finance committee presented the following report:

This is to certify that the undersigned committee on finance have examined the books and report of the secretary-treasurer, Roy A. Dodge, and find them to be correct.

(Signed) J. M. PATTON, 04.
A. B. LINDQUIST, '05.
H. A. WIGTON, '05.

Dated, Omaha, Oct. 14th, 1914.

On motion adopted as read, and placed on file.

Chairman Christie of the committee on by-laws announced they had no report.

Chairman Bridges of the committee on resolutions announced they had no report.

Chairman Wherry of the committee on nominations then presented the following names for officers for 1914-1915:

President—J. M. Patton, '04, Omaha.

First Vice-president—C. S. James, '99, New York City.

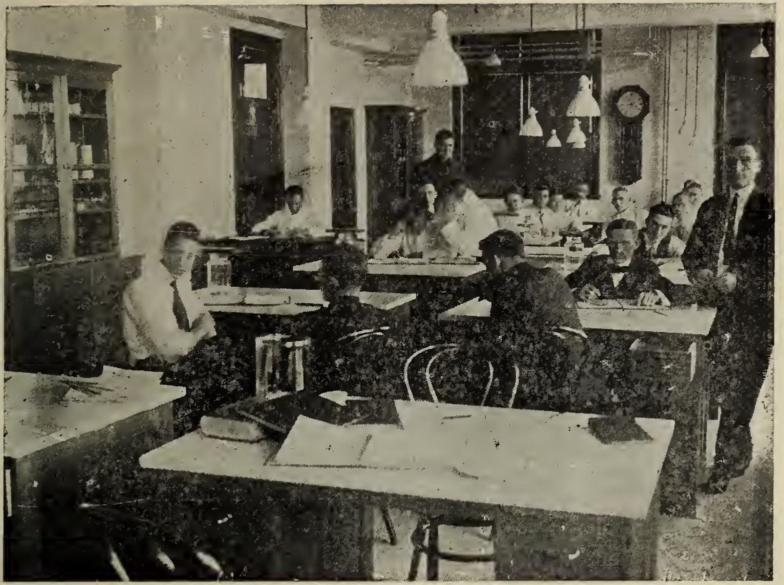
Second Vice-president—James Bisgard, '04, Harlan, Ia.

On motion report adopted and officers as named by committee be ratified as officers for 1914-1915.

B. W. Christie, '02, asked the Alumni present for their support and to use their influence with coming legislators for a University Hospital.

On motion association adjourned.

ROY A. DODGE, 01,
Secretary-Treasurer.



Physiological Laboratory

Laboratory of Histolcgy and Embryology

WEDNESDAY, OCTOBER 14, 1914

CONFERENCE.

GASTRIC ULCER.

By LeRoy Crummer, M. D.

There is perhaps no one subject in medicine which has attracted more attention in the last few years than gastric ulcer. A great deal has been written about it, but unfortunately the majority of these articles have been from the standpoint of the surgeon and have dealt almost exclusively with the more severe form of gastric ulcer, which seems to the operator to be amenable only to surgical interference. While it is true that many cases of gastric ulcer are curable by surgical means, I hope today to show you that the vast majority of such cases, if diagnosed in time, are very easy to handle in the routine medical practice, and if so handled a very few of them ever need surgical interference. One of the peculiar facts of medicine which has thoroughly impressed many observers is the great frequency of gastric ulcer (Dudafay) or rather scars of gastric ulcer, on the autopsy table as compared with those cases which are diagnosed clinically. In many post mortem tables we find as high as eight per cent of all cases presenting scars of healed gastric ulcer, which of course goes way above the occurrences of clinical gastric ulcer, and I hope to show by analysis of this series of cases wherein discrepancy lies between the cases which may be recognized clinically, for instance, and cases which present the majority of so-called classical symptoms of gastric ulcer. Most of the cases of gastric ulcer which are diagnosed on the basis of the classic findings of ulcer, pain, vomiting and hemorrhage, ,are in reality cases of chronic indurative ulcer and the diagnosis is made only when complications have occurred.

In the table which I will give you later, I will try to separate the cases, dividing them into those seen before I began to go further into the diagnosis; that is, when I had the ordinary conception of gastric ulcer, and on the other hand, those that I have seen since I came to the conclusion a simple gastric ulcer could be diagnosed. The principle condition to bring our patient to our consultation room in which the ultimate diagnosis may be gastric ulcer, is pain, ordinarily called hyperchlorhydria pain. This pain is supposed, ordinarily, to occur as results of excessive percentage of hydrochrolic acid in the stomach contents. As table 1 will show, excessive acid is by no means the rule in these cases and in fact typical gastric ulcer can occur even with HCL absent, so that there must be some other factor in the causation of pain after meals, and that this is frequently due to simple ulcer. I think I can show you by table 11, in which a previous diagnosis of simple hyperchlorhydria had been made, but in which owing to a recurrence of the symptoms, a more thorough examination was made and a definite diagnosis of simple gastric ulcer was substantiated.

As far as the pain itself is concerned, we are accustomed to speak of a periodicity of pain, finding a particular hour for the occurrences of pain, which while varying with the different cases, is fairly constant with the individual case. Table III will show the varying hours at which this pain can occur and even will show that in a few cases a diagnosis can be made where pain is absent.

When we speak of double periodicity, we mean the periods of pain at a definite hour of the day which lasts from two to six weeks and then either under treatment or spontaneously ceases, only to occur again at a longer or shorter interval which may be seasonable. Table IV shows the analysis of the occurrences of this form of periodicity and if we diagnose ulcer in the fourth recurrence, it should have been diagnosed in the first.

The main factor, causing me to change my opinion as to the diagnosis of gastric ulcer, was the routine examination of the stool for occult blood in all cases presenting either of these forms of periodical pain. I soon found that when the proper precautions were taken to exclude all forms of meat from the diet and to be positive that there was no cause of hemorrhage lower down in the intestinal canal that in a large percentage of cases of typical pain without definite stomach findings there was occult blood in the stool, as table V will show. When cases were put upon proper treatment for an ulcer based upon occult blood in the stool, it was surprising the uniformity with which the blood disappeared after a definite period, as table V will show.

As far as vomiting (table V) is concerned in the diagnosis of ulcer, it is an extremely rare symptom in cases of simple ulcer and when it occurs it must be interpreted as to the nature and cause of the vomiting. We find a few cases in which vomiting is induced to bring about relief of pain, in another case spontaneous vomiting has a similar mechanism. Either one of these forms of vomiting can exist with simple ulcer but when persistent vomiting occurs, or when there is recurrent vomiting of large amounts, it points to a complication of pyloric stenosis, either on a definite organic basis or on an irritative, as is shown 11 times in 212 cases. In these cases, in spite of typical recurrent vomiting, the ulcer readily healed under Yehnhartz treatment. Again here, one of the classis symptoms of gastric ulcer proves to be a diagnosis of complication.

As a great deal is written concerning delay in the stomach, that is food retention after a normal hour, I wish to observe that this also, in my mind, is a sign of complication. I have found in the routine examination of the stomach that by inflating the stomach during examination, the palpatory findings of these stomach wall allow us to make a diagnosis very frequently. Twenty-three times in 212 cases of pyloric obstruction was diagnosed during the time hypertrophy of the muscle wall before the stomach musculature becomes insufficient and gives the ordinary periodic vomiting and retention, which in reality is at the time of insufficiency.

Hemorrhage, the third of the important classic symptoms, is obtained from the history in two forms, one as hematosis and the other as malenae. This later can be very much discounted as a point in history because it is found very rarely, only once indeed, in the history of these cases. Hematemesis, on the other hand, is an alarming symptom and usually brings the patient immediately to the physician, so practically all of these cases are seen. The statistics of 11 cases in the history of hemorrhage in the first 26 cases seen and only 14 in the last 186 cases seen, presents the most striking suggestion in the diagnosis of ulcer. When, however, we begin to look for slight hemorrhages, that is when we go through the routine examination of the stool, we find immediately a sign which is noted almost as frequently as the symptoms of pain. For instance, out of 180 cases in which occult blood was looked for in the stool, we find a total of 135 cases, or in other words a 75 per cent sign. When we add to these 41 cases in which no blood was found at the time of examination but in which there was a history of hemorrhage, pain after meals and cured by Lehnhartz, we find 92 per cent present bleeding in some form or other. In the cases in which no blood was found, either in the history or examination, we had three cases in which pyloric stenosis gave us our clue to the diagnosis, two cases in which subsequent involvement of the gall bladder and perigastric adhesions demanding operation made the diagnosis positive, and only cases in which we had to rely absolutely upon the history for diagnosis. These cases would not be included in the series were it not for the confirmatory results of treatment.

In seeking for every possible aid to diagnosis, I have lately been noting areas of hyperesthesia over the abdomen and back and have been able to demonstrate the presence of areas of hyperesthesia in 74 out of 212 cases. This area varies in location and extent according to table VII. So far I have not been able to make a diagnosis of location on area of hyperesthesia, but think ultimately this may be possible.

As far as treatment is concerned, the Lehnhartz diet is a distinct advance over the old von Leube starvation. The results of treatment as as follows: Table IX. The question of recurrence, which practically the world over, averages 25 per cent, whether the case is treated medically or surgically, is also given in this same table. The question always comes up of operative treatment of these cases. There is no question that in the past surgical treatment has been very much overdone. Indications for surgical interference are:

First: Complete pyloric stenosis, in which an operation must be done. In incomplete pyloric stenosis the ultimate results of medical treatment are frequently superior to those of surgical treatment.

Second: Perforation. Perforation of the true type in which a large amount of stomach and bowel contents escape into the peritonium is of course only amenable to surgical treatment and this is not a very successful procedure, though there are cases in which with a mere extension peritonitis the results are satisfactory with the ordinary treatment.

Third: Hemorrhage is one of the possible indications of surgical intervention, but in this series there has been no case in which there was an opportunity for surgical intervention.

To recapitulate, the diagnosis of gastric ulcer must be attempted before complications exist. The majority of cases diagnosed on the basis of the text book symptomatology are diagnosis of old indurative ulcers with complications. The post-mortem rooms and clinical experience shows that there are many more simple ulcers than there are of this type of ulcer and a diagnosis should be attempted by means of complete examination of every case presenting periodical pain in the stomach. That this thing is possible is shown by the fact that in classifying ulcers in the old series there were 13 indurative ulcers to 100 simple ulcers, but in checking cases more recently we find only 47 indurative ulcers to 134 simple ulcers.

TABLE I.

Stomach Analysis.

A. HCl Estimations made.

HCl absent	12
Below 10 degrees	9

10 to 20 degrees	25
20 to 30 degrees	33
30 to 40 degrees	24
40 to 50 degrees	9
50 to 60 degrees	9
60 to 70 degrees	3
70 to 80 degrees	1
96 degrees	1
HCL. present, but not estimated	30
Total	156

TABLE II.

Hyperchlorhydria.

1.	Probable ulcer because pain after meals	203
	Proved acid present but no blood	29
	Subsequent blood	5
2.	Achlorhydria with pain after meals	25
3.	Recurrences of pain after ulcer cure.	
	No blood in stool.	
	Hyperchlorhydria	16
	Hypochlorhydria	2
	Gastrosuccorrhoea	3
	Achlorhydria	1
	Adhesions from Talmus op	1
	Vicious circle	1

TABLE III.

Hour of Pain.

After meals	24
Immediately after meals	20
Afternoon	2
Midnight	11
Midnight and after meals	29
Midnight and before meals	1
Midnight and afternoon	4
½ hour to 1 hour after meals	16
1 hour to 2 hours after meals	25
2 to 3 hours after meals	39
Before meals	3
Constant	
Local peritonitis	4
Hemorrhage	1
Pyloric stenosis	4
Constant now after meals before	
Perforation	4
Pyloric stenosis	2
Gall stones and perigastritis	1
Vicious circle	5

Not noted.

No pain.

- 1 Chlorosis.
- 1 Noticed occult blood.
- 1 Secondary anemia.

Slight

- 1 Preuss chlorosis.
- 1 Hemorrhage first symptoms.

TABLE IV.

Perodicity.

Present	169
First attack	33
Constant pain	6
History not found	4
Total	212
Number of periods	
One	28
Two	28
Three	32
Four	14
Several	92
Lost	4
Total	198

TABLE V.

Present	135
Absent	41
Not noted	32
Total	208
a When absent and not noted	
Absent	41
Pyloric stenosis absolutely due to ulcer	3
Ulcer healed but present from hemorrhage, deformity and Lehnhartz	36
b Not noted	32
Pyloric stenosis	12
Cancer	1
Hemorrhage	4
Old cases undoubtedly ulcer but did not return	12
Disappearance	
Day 3	13
4	10
6	18
7	9
8	4
9	2
10	14
10 above	18
Highest number of days 28, then disappeared for good	
Continuous	
a Malignant degeneration	2
b Severe hemorrhage	2
c Perforation and death	1

TABLE VI.

Vomiting.

Old Cases	
Present	16
Absent	5
Not noted	6
New Cases	
Present	55
Absent	74
Not noted	1

Vomiting From pyloric stenosis	
Old	7
New	15
Hemorrhage only	
Old	4
New	13
Perforation	
New	3
Not vomiting but nausea	6

TABLE VII.

Hyperesthesia.

Absent	17
Not noted	69
Present	74
One inch below ensiform	2
Ensiform	2
Epigastrium	18
Left costal border	1
Above umbilicus	7
Above umbilicus radiating to chest	31
Above umbilicus 12 dorsal right behind	2
Above umbilicus back and radiating over chest	6
Above umbilicus radiating to gall bladder region	3
Above umbilicus radiating to gall bladder and 12th dorsal behind	1
Below umbilicus	1

TABLE VIII.

Table by Ages.

Youngest 17 years. Oldest 64 years.

15-20 years	7
20-30 years	58
30-40years	81
40-50 years	44
50-60years	24
60-75years	6
66 years	1
Total	221

Table by Sex.

Male, 151. Females, 61 Total, 212

TABLE IX.

No. 2000 to 2500	Diag. 1st,	16			
	" later	14	30	50%	
					78
No. 2500 to 3000	Diag. 1st,	35			
	" later	13	48	73%	
No. 3000 to 3500	Diag. 1st,	22			
	" later	8	30	73%	
					73
No. 3500 to 4000	Diag. 1st,	42			
	" later	1	43	97%	
No. 4000 to 4300	Diag.	18			

Total	169
Below 2000 revised later	4
Below 2000 Diag. 1st	30
Total reported	203

TABLE X.

Treatment.

Operated on	18
Lehnhartz in hospital	83
Lehnhartz at home	7
Lehnhartz Modified	
Ochsner first, later Lehnhartz	2
One day each ½ day followed by forced feeding	6
And added to 75% diet in partial stenosis	2
Bread and milk at home	3
Von Leube	3
Contraindications for Lehnhartz because of diabetes	1

TABLE XI.

Recurrence.

Medical	9	10 in 106
At home	1	
Surgical		7 in 22

a. Gastroenterostomy.
New ulcers, 3 in 13.
b. Hemorrhage from ulcer after gastroenterostomy, 1.
c. Operated gastric ulcer,
none found but present and healed medically, 2.
d. New ulcer after breaking up adhesions.
three months later, 1.

Time of recurrence
a. Medical
1-2 months.
2-3 months.
1-4 months, 7 months.
1-5 months.
2-1 years.
1-2 years.
1-3 years.
1-4 years.
b. Surgical
2-3 months.
1-3 years.
1 Not noted.

TABLE XII.

Operations.

Gastroenterostomy	Old	8
	New	4
Excision		1
Exploration		4
Perforation		5
Operations otherwise no relief		
Appendicitis without pus, etc.		13
Gall stones as result		3
Uterine suspension		1
Perineorrhaphy		1

Of three explorations, one revealed pyloric narrowing which was taken into account and appendix removed instead. No relief.

The other two no ulcer was found but proved and cured with Lehnhartz.

TABLE XIII.

Complications.

1. Perforation	8	3.7%
New	7	
Old	1	
Dead	4	50 %
Alive	4	50 %
Location		
Anterior wall	2	
Lesser peritoneal cavity	2	
Lesser peritoneal cavity and from lesser curvature into surface of liver	1	
Pyloris	2	
Pyloris greater at common duct	1	
2. Stenosis	33	or 15.5%
New, 20 in	183	or 11 %
Old, 13 in	29	or 45 %
3. Pylorospasm	11	or 5 %
New, 10 in 183.		
Old, 1 in 29		
a. Hypertrophy of muscles	23	or 12.7%
b. Peristaltic wave	5	
c. Secondary insufficiency	2	
d. Delay not included in stenosis	24	
4. Hour glass stomach	1	
5. Gastrosuccorrhoea	2	
6. Functional disorders following starvation	23	or 16.5%
7. Gall bladder association	7	
8. Hemorrhage	53	or 16.5%
New, 23 in	183	or 12.7%
Old, 12 in	29	or 44.5%
Two additional cases noticed blood in stool.		
9. Malignancy		3.2%
a. Following ulcer		7
Positively		4
Probably		3
b. Ulcer confused with malignancy		2

TABLE XIV.

1. Operated cancer. Died later. Posted general carcinomatous.
2. Operated gastroenterostomy. Died. Postmortem; chronic indurative ulcer at pyloris with bleeding vessel at base. Perforation of second ulcer on anterior wall. Firm adhesions around it and opening into stomach with discharge of pus. Very severe hemorrhage.
3. Operated. Gastroenterostomy. Three days later died. Hemorrhage. Postmortem showed hemorrhage from second ulcer not giving pyloric obstruction.
4. Castroenterostomy. Acute pyloric stenosis. HC1 plus all signs of ulcer. Died 10 months later. Postmortem showed general carcinomatosus.
5. Gastroenterostomy for stenosis. Died second day. Circulatory failure.
6. Operated. Perforation. Postmortem; perforation posterior wall lesser curvature with abscess in lesser omental cavity.
7. Pyloric stenosis with chronic indurative ulcer. No condition to

operate at any time. Had severe hemorrhage, one-half pint of blood. Died 12 hours later.

8. Perforation 10 a. m. Operated 8 p. m. Abdominal cavity filled with chyme and bile. Pain referred to right shoulder. Postmortem showed chronic ulcer that had split and opened common gall duct along with duodenum.
9. Several severe hemorrhages so that almost exsanguinated. Pain in right shoulder and very little temperature. Postmortem showed ulcer at pyloric end of lesser curvature which had perforated and adherent to liver. Lesser peritoneal cavity densely adherent.
10. Malignant. Unoperable.
12. Pyloric cancer. Unoperable.

Cancer	6
Perforation	3
Hemorrhage	3
Circulatory following operation	1

TABLE XV.

Simple	Old	10
	New	134
Chlorotic, new		2
Chronic Indurative	Old	13
	New	47
Not noted. Old		6
Total		212

DISCUSSION.

DR. LANE: Spoke of personal experience in his own case. A person who has not suffered has no idea of the excruciating pain following a meal by a few hours and relieved by eating. The Lehnhartz diet is undoubtedly the most efficient in the treatment but can only be made practicable by close supervision and control by the doctor in charge. A more thorough examination of the patients should be made by the practitioner with a view to an earlier diagnosis

D. KERR: Three cases of hematemesis were met in practice and adrenalin administered for immediate results. The equipment necessary for a thorough clinical examination in each case is not usually possible for the country practitioner. The time necessary is another prohibitive factor.

DR. CHRISTIE: The attention and control over these cases in country practice is not sufficient to make a practical application of the advised treatment.

DR. SCOTT: Dr. Christie's contention is correct but much can be accomplished by determination in adherence to the treatment.

DR. CRUMMER: The diagnosis of gastric ulcer is not hard and does not require much apparatus. The simple Guaiac test for occult blood in the stool after a few days on a meat free diet is practically all that is necessary.

THE DIAGNOSIS OF PATHOLOGICAL PERFORATIONS WITHIN THE ABDOMEN.

By John E. Summers, M. D.

After it is over, and the patient's mind and the minds of his family and friends are at ease, it is always possible to get a history of antecedent symptoms, in every case of acute perforation of the abdomen, whether the lesion be of the stomach, duodenum,, gall-bladder, pancreas, ileum, appendix—all of these in the male; in the female may be added infections on impregnation in the fallopian tubes. As Moynihan says, "Late symptoms are too often the heralds of death; inaugural symptoms may be the cry for timely surgical assistance." Surgeons are all familiar with the classical symptoms of acute abdominal perforation, i. e., peritonitis, soon becoming general, following a **sudden** onset of severe, **excruciating** pain; short, quick breathing, an anxious expression of face, rigidity of abdominal muscles, but the accurate diffentiation between the different lesions depends to a very great degree upon the anamesis—one must know the initial site of severe pain, since it becomes general later, and there may be no point of **greatest intensity.** If the history shows the usual signs of chronic gastric or duodenal ulcer, there is, as a rule, no difficulty in locating the perforation; however, a patient frequently remembers only a "slight indigestion," or no symptoms whatever, until the perforation took place; the careful questioning as suggested above, often proves contradictory to these statements, giving an entirely different history; without this, one must depend upon the physical examination. Alexander Miles differentiates between gastric and duodenal ulcer perforations, upon physical examination, as follows: He says, "When the most tender area is in the left hypochondrium, the perforation has almost invariably been towards the cardiac end of the stomach; when around the umbilicus, in the body of the stomach; and when in the right hypochondrium, near the pyloric end or in the duodenum. So constant is this association, that I have come to rely upon it as a guide to the site of the incision." The physical symptoms of **duodenal perforation** and **appendicitis** are often so similar that it is difficult to distinguish between the two. Both are characterized by pain in the right iliac fossa; however, in duodenal perforation there is **always** pain in the right hypochondrium, which occurs only **exceptionally** in appendicitis. On the other hand the intensity of the pain is not so great in the latter as in the former, nor are the abdominal muscles so extremely rigid—consequently, in appendicitis breathing is not so short as in case of duodenal perforation; here again, if these physical differences cannot be distinguished, one must rely chiefly upon the anamesis. E. Stanmore Bishop (British Medical Journal, May 4, 1912), does not agree with Moynihan, (British Medical Journal, Feb. 17, 1912), as to the difficulty in diagnosis of cases presenting symptoms of gastro-duodenal ulcer, but in which the origin of the trouble is elsewhere. Mr. Bishop says, "It is in the differences noticeable between the symptoms present in previous attacks that some assistance to a diagnosis may be found." He thinks these cases are very likely to be appendicitis of the "relapsing variety," and tells of cases in which the symptoms of earlier attacks were exactly of gastro-duodenal ulcer, which **must** have been the pre-operative **diagnosis,** had they been treated surgically in the earlier years of their history. Later, these cases developed characteristic symptoms of appendicitis, and when they came to the surgeon were easily diagnosed.

Occasionally an acute perforation in the gall bladder will present symptoms so similar to those of duodenal perforation, that an accurate diagnosis may be made only by obtaining a careful history. Monyihan—in his book on Duodenal Ulcer—tells of only one instance of acute affection of the gall bladder, in which the anamnesis revealed mimicing those of duodenal perforation; since the patient seemed less dangerously ill than he would have been in case of duodenal perforation, the case was rightly diagnosed as acute perforation of the gall bladder.

It may be difficult to distinguish between acute pancreatitis and perforation of the duodenum; a careful history in a case of acute pancreatitis will ofen show dyspeptic symptoms identical with those of gall stones, while in duodenal perforation a history of previous indigestion is unusual, except that so classically described by Monyihan as hyperchlorhydria, which he calls duodenal ulcer. Mr. D'Arcy Power (London Lancet, July 13, 1912), says, "Indeed the absence of a history of dyspepsia, with the signs of sudden perforation——— inclines one at once towards an exploration of the duodenum." Vomiting is also an important symptom pointing to pancreatitis.

A variety of conditions may bring about acute perforation elsewhere in the abdomen, e. g., in the jejunum—which is almost invariably caused by ulceration secondary to the performance of gastro enterostomy—in the ileum, or in the colon; of these the typhoid perforation occurs most often, and is the most important; its location is usually in the ileum, near the caecum, where its physical symptoms would be very similar to those of appendicitis, which may be a complication of typhoid; however, in a patient suffering from typhoid, a typhoid perforation may usually be differentiated by the onset of pain (more sudden than in appendicitis), by increased vomiting and a sharp chill in connection with the pain,, and by the accelerated pulse rate. In typhoid, diarrhoea is the rule; in appendicitis it is constipation. Practically the only source of assistance in distinguishing between a typhoid perforation and gastro-duodenal lesions (also possible complication of typhoid), is found in the antecedent symptoms. In case of acute affection of the gall bladder resulting from typhoid, the occurrence of jaundice will be of diagnostic value.

Dr. Geo. Armstrong, professor of surgery, McGill University, president-elect of the American Surgical Association, surgeon in chief of the Royal Victoria Hospital, and surgeon of the Montreal General Hospital, in a paper on typhoid perforations, read in London at the last Clinical Congress of Surgeons, differs very much from the usual text-book descriptions or clinical analyses of typhoid perforations. In his analysis, based upon a study of 15,224 cases of typhoid fever, there were 544 perforations, or about **one** in thirty-one and one-half; eighty-three of these cases of perforation occurred in the Royal Victoria Hospital, and 110 in the Montreal General Hospital; so one must realize that Dr. Armstrong's opinions have some sound foundation. He states that the first indication that perforation has occurred, is usually **pain.** It was present in 75% of the eighty-three cases from the Royal Victoria Hospital. In these, the pain was either of a sudden, crampy type, or generalized in the right lower quadrant, epigastrium, and left hypochondrium; in only 25% was the pain generalized, or in the right or left lower quadrants. The pain was often not severe in character. Dr. Armstrong emphasizes the fact that in the training of a typhoid nurse, she should be taught to send for a physician whenever a typhoid patient complains of abdominal pain. In 11% the general toxemia of the patient obscured all signs. The **second** symptom which Dr. Armstrong emphasizes as of greatest importance, is the change in facial expression. It is usually, in the majority of cases, quite evident. There may be pallor, a look of distress, restlessness, vomiting, chills, profuse sweating, general malaise, an unaccountable change for the worse in the general condition; a feeling among thoe in attendance that something has happened that they cannot account for. Tenderness was present in some degree in 88%, and absent in 12%. In 85% there was distinct rigidity. Mostly, this rigidity came on within the **first** hour, then the **second,** and in only a relatively small percentage of the cases was the rigidity referred to the later hours. There is practically no value in the study of liver dullness if this is first considered at the time of suspected perforation. If this has been constantly observed from time to time during the hitory of the disease, of course a sudden change in that direction would be invaluable. Usually there is no fall in temperature, though occasionally this occurs. The pulse change is reliable; it always rises; no studies in changes of blood-pressure have been made.

One must not forget in differentiating between acute lesions within the abdomen, that identical symptoms may have their origin in some intra-thoracic lesion; they are usually the symptoms of appendicitis. Monyihan, ("Duodenal Ulcer," page 180) quotes Dr. Maurice Richardson in this connection, as follows: "The diagnosis between acute thoracic and acute abdominal disease is always easy as soon as the characteristic signs of either are apparent. The chief difficulty in making a distinction is to recognize that the necessity for that distinction exists, for the thoracic symptoms are always masked by the more conspicuous and distressing abdominal ones. Once the attention is drawn to the possibility of a thoracic cause, not only for the thoracic but for the abdominal symptoms an accurate diagnosis is perfectly easy."

In the female, the diagnosis of acute conditions of the fallopian tubes and the ovaries, which have caused peritonitis, may be greatly aided by careful vaginal examination, in addition to abdominal examination. The only diagnostic means is a minute inquiry into the previous history. However, if one has not been able to distinguish accurately between these conditions and a possible appendicitis or other intestinal lesion, either one may be easily reached through the same incision in the right iliac fossa.

We come now to the indicated technic of operation. We have seen from the foregoing, that the most important differential sign is the location of the point of greatest tenderness. When the origin of the trouble cannot be accurately located it is generally thought best to make the incision in the medium line. I do not follow this technic, but agree with Johnson that there are many possible lesions which could not be reached from a median incision unless it were a very large one. Septic processes originating to the right of the mid line by far out-number those to the left, consequently I prefer a vertical incision two or three inches long, through the right rectus, just on a level with the umbilicus. If the trouble proves to be in the stomach or duodenum, gall bladder or pancreas, the incision may be extended upwards sufficiently to reach these organs; on the other hand, if the appendix, or a typhoid perforation of the ileum, or the uterine appendages are suspected as the origin of the trouble, the incision may be continued downwards so that they may be investigated. When the site of the lesion is reached, the perforation should be closed, and the ulcer excised or infolded. It does not seem advisable to perform gastro enterostomy. Monyihan does a gastro enterostomy only when there is danger that excision or the infolding of the ulcer will decrease the lumen of the bowel so as to obstruct it; the performance of gastro enterostomy would only increase the time required for the operation, unnecessarily, and in addition there would be the remote danger of jejunal or gastro-jejunal ulcer following it. This advice applies only to patients in a weakened, serious condition, which I classify as late operations. In timely operations with patients in good condition, I not only infold the ulcer but, in doing of it, practically obliterate the duodenum. I do this always **after** first doing a gastro-jejunostomy. A patent pylorus tends towards a recurrence of the ulcer, as Nature prefers the natural to the artificial route, for the onward passage of the stomach contents.

DISCUSSION.

DR. TROSTLER: Recent experimental work has shown that the injection of inflammatory secretions of the appendix induces in the dog typical gastric and duodenal ulcer. This fact, although not yet fully worked out, gives weight to the association of gastric ulcer symptoms and inflammatory processes in the right iliac fossa.

DR. JOHNSON, Fullerton: Question in regard to the use of morphine to control the pain in suspected ulcer perforation in spite of the claims made that it is dangerous on account of masking the symptoms.

DR. SUMMERS: There is undoubtedly an association between an inflamed appendix and gastric and duodenal ulcers and this inflammation is very probably a causative factor. Cases of a palpable tumor in the pyloric region with a diagnosis of malignancy have been proven by an exploratory operation to be an old indurated ulcer. Permanent relief and disappearance of the tumor were obtained by gastro-enterostomy, thus proving the non-malignancy of the fibroid growth. The hypodermic of morphine is certainly indicated in many cases of perforation, as in a rather certain diagnosis with extreme pain. There is no use letting the patient suffer unnecessarily, either before or after operation. It is the very best thing that can be given in cases where an immediate operation is not possible. It stops all action in the bowel, thereby lessening the chance of the spread of the infection and promoting the formation of a localized abscess which can later be opened and drained by very simple surgical procedure.

FIRST DRESSING IN FRACTURES.

By R. R. Hollister, M. D.

In taking up this subject, we will confine ourselves to very simple procedures since frequently one is called upon when proper materials are not at hand. Obviously it makes a difference whether the fracture is simple or compound.

If compound, and the bleeding is considerable, a tourniquet is necessary, otherwise a sterile dressing applied to wound with no manipulation until you have things necessary to do it right. If tincture or iodine or alcohol is at hand, apply, as they are very helpful.

For transportation or waiting until assistance can arrive, fixation of the part is necessary. Taking the clavicle, for instance, if not necessary to move about simply lie on back on a horizontal bed with a small pillow between shoulders and none under head and the parts fall into a good, comfortable position.

If transportation is necessary, put on figure of eight bandage, crossing behind over spine. In fracture of the lower leg, pillow and side splints are always available in shape of ordinary pillow and two lateral splints tied with rope, string or bandage.

If the femur is implicated, the same splints used on lower leg, placed posteriorly and internally with a long external piece reaching from foot to axilla bound to body allow being moved about with the minimum of discomfort. Cases of lower arm are treated same as those of lower leg with splints and padding.

Accidents of this kind at the elbow offer a little different problem in mechanics since almost all fractures here automatically come into the best position to be obtained by acute flexion carefully maintained, and far and away the best way to accomplish this is by a figure of eight bandage around the body as demonstrated.

Fixation of the ribs is best procured by an adhesive plaster swathe three-fourths encircling the body, put on tight enough to hold the affected side still. In absence of adhesive, a cotton swathe pinned as tightly as possible, is the best substitute.

DISCUSSION.

DR. McDONALD: The square knot instead of the cranny knot should always be tied.

DR. SUMMERS: The practical points of Dr. Hollister's demonstration are very much to be commended. As a rule, surgeons and city physicians are not very good in this line of work. Many pointers can be obtained from the country practitioner, not only here but in many other ways. A good example is shown in the case of a prominent man who applied his extension after fixing firmly the splint.

DR. JOHNSON: No mention was made of compound fractures. The tincture of iodine is the best application in the exposed area. The wound should not be washed with water or any other solution, as it is more liable to spread the infection than to do good by removal. The larger particles of foreign substance should be removed, a thorough application of iodine made, good drainage secured and a clean dressing applied.

DR. ARMSTRONG. In the position of extreme flexion at the elbow advised by Dr. Hollister, what means are used to prevent macreation and ulceration of the skin in contact?

DR. LANE: Sodium silicate can be used instead of plaster-of-paris in making a cast. Four layers of bandage are applied and the sodio-silicate painted on each layer as it is applied. This makes a much lighter and neater cast than the plaster-of-paris.

DR. HOLLISTER: The iodine treatment mentioned by Dr. Johnson is very good. The maceration at the elbow can be prevented by carefully cleaning and drying the skin and placing two or three thicknesses of cotton cloth between the surfaces. Also the dressing should be changed two or three times a week. The circulation in the arm is best tested by light pressure upon the tips of the finger-nails and judging the rate of the return of the color to the blanched area underneath the nail. The pain in the arm should also be used as a guide to the condition existing.

THERAPY OF SKIN DISEASES.

Alfred Schalek, M. D.

It is a sad but true fact that the management of skin diseases is little understood by the average physician. Only the study and observation of a large number of cases will produce the necessary efficiency and the time and opportunity for this is rarely at their disposal. Text-books even with good plates cannot supply clinical experience. Another reason is that surgical and medical diseases appear to him more serious and take up most of his time. It is realized by few that an early diagnosis and proper treatment may prevent a fatal ending in quite a number of skin affections; that others disfigure the patients permanently and that a great many make the patient's life almost intolerable. For these reasons it may be to the general pracitioner's advantage to discuss a few practical points concerning the therapeutics of dermatology, which if kept in mind and applied at the proper time may save a great deal of time and trouble. A number of skin eruptions are exceedingly rare and are only recognized by a man who makes a special study of dermatology, but many skin troubles are very common and occur continually in almost every family. Physicians who would never think of prescribing patent medicines, of which they know nothing in any other complaint, do so right along for skin diseases. This proves either ignorance or lack of interest. The curriculum of the up to date medical colleges, however, improve this situation steadily and the young graduates go out into practice now well equipped to take care of most of the dermatological cases that come under their observation.

Skin diseases belong to two classes; in one they are simply the more or less important manifestation of a systemic disturbance, while in the other they represent purely local pathological conditions. It is obvious that the treatment of the first is principally constitutional, in the other local. Just the same, it should not be forgotten that a thorough general examination is important every time and that the improvement of the general condition of the patient is rewarded by a quicker recovery from the local symptoms. To mention a few skin eruptions which are only a minor part of the general disturbance; scarlatina, morbilli, typhoid, syphillis, leprosy, etc. Skin diseases which are due to some more or less unknown internal condition are pemphigus, dermatitis herpetiformis, Addison's disease, acanthosis nigricans, chronic urticaria and others. Purely local are eczema, psoriasis, parasitis diseases and others.

As mentioned above, the matter of diet and hygiene are always of considerable importance. If we exclude the consequences of idiosyncrasies, the effects of indigestible food, the congestive action of nervous excitant and depressants like coffee, tea and alcohol, we may still have to deal with trouble from the gastro-intestinal tract due to faulty eating and bad elimination. The frequent presence of considerable amounts of indican in some skin diseases points towards some connection with decomposition and fermentation. The belief that meats, starches and sweets are injurious has no scientific support, though in the presence of gouty tendency and obesity a reduction of the diet to the plainest food is often of benefit.* A number of skin diseases seem to depend on some organic or functional involvment of the nervous system, though a direct connection is not proven. A few such are: Alopecia, areata, herpes zoster, lichen planus, urticaria, etc. Regulation of the patient's life, change of surroundings, hydropathic measures or even a rest cure must here be taken into consideration.

Except if administered with the purpose of correcting some internal cause or complication, there are very few drugs given internally for a direct effect on the skin. Arsenic, one of the oldest and most reliable standbys, probably has its influence accounted for by some indirect action. To employ local remedies intelligently, it is necessary to know their chemical action on pathological tissues. The same drug used in different stages of the same disease may have opposite results, beneficial in one and injurious in others. The same applies to its strength and to the vehicle in which it is carried. Furthermore, individual conditions, such as hypersensitiveness and idiosyncrasies of the skin must be considered.

No matter what the diagnosis is the treatment depends on whether there is an acute inflammation or a sluggish chronic process present. In the first, especially if accompanied by exudation and swelling, absolute rest and protection is indicated. This applies to remedial applications, and also atmospheric and traumatic irritations. The remedies must be indifferent in action, soothing and protecting. Lotions of boric acid, sodium bicarbonate and diluted subacetate of lead are tolerated best. At times even these will be found aggravating and recourse is taken to the old-fashioned carron oil, using olive oil instead of linseed oil. If there is little or no exudation inert powders like talcum and starch are indicated. These are preferable for larger areas, while for limited spaces boric acid, sodium, bicarbonate, zinc oxide and bismuth may be added. Opposed folds of the skin must be kept separated and the dressing changed whenever it becomes moist or soiled. Water and soap should be avoided in these conditions and cleansing done with cold cream, oil or, if there is not much sensitiveness, with pure benzin. As soon as the most acute stage has subsided a change may be made to ointments, which should be freshly prepared, cooling and non-irritating, such as zinc oxide ointments, lanolin mixed with water, etc. If exudation is still present, the pastes, consisting of equal parts of powders and ointments are preferable. They are of stiff consistency and are spread thickly on cloth and applied like plasters. They should be changed twice daily or oftener and the skin cleansed between applications. They are good absorbents and protectives and usually well tolerated. With these simple general points kept in mind most of the inflammatory affections of the skin can be managed with good results.

In the sub-acute and chronic skin diseases with sluggish circulation, inflammation and slow retrogressive changes, stimulation is called for. Most text-books of dermatology advise the use of different remedies without explaining their action, though such a knowledge should be the sole guide for their selection. Thorough scrubbing with water and green soap is here indicated. The drugs used in these conditions vary in their action according to the strength, in which they are prescribed. In week doses they are astringent, antiseptics and anti-pruritics, while in large doses they are stimulating, macerating and caustic. Representatives of this class, among others, are salicylic acid and resorcin. Their keratolytic action penetrates deeply but never beyond the horny layer, so that the new surface produced never oozes, because the layer of the stratum corneum still covers the mucous layer. The keratoplastic effect takes place when the exfoliation arouses active karikinesis in the prickle layer. Tar and its derivatives are our best remedies to remove old infiltrated, scaly patches and to reproduce a sound skin. They contract the paretic dilated cutaneous blood vessels, stimulate the superficial circulation and hasten the absorption of the infiltrations. They lessen the formation of scales and through their anaesthetic action on the nerve ends relieve the itching. Sulphur has an elective action on the sebaceous glands and is highly valuable wherever these are involved. If rubbed into the skin it is dissolved by the fats of the sebum and the fatty acids of the sweat glands and has vaso-constricting properties. In higher concentrations it acts as a germicide. Sulphur and other parasiticides, like naphthol, mercury, etc., destroy the parasites either directly or by exfoliating the tissues which harbor them. Drugs which stimulate up to the point of producing a dermatitis are chrysarobin. A mildly caustic is a diluted solution of caustic postassium. Nothing acts better on a limited chronic infiltrated patch than the removal of the upper epidermis with this agent. It must be neutralized quickly to prevent a too severe action. By opening up the deep vesicles, relieving the tension, it stops the intolerable itching and starts the formation of a new, sound epidermis. Chrysarobin is dissolved in flexible collodium and painted on each individual lesion; after a time it causes an active inflammation which hastens reproduction of healthy tissues. It is employed mainly in psoriasis, limited chronic patches of eczema and ringworm of the scalp. Anilin stains are beneficial for indolent ulcers with no tendency to be covered with epidermis. Such are the scarlet red and the less irritating basic fuchsin. To get results the ulcer must first be cleaned of all necrotic tissues and pus and sound granulations produced.

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*Schamberg seems to have proven that psoriaois and the injection of introgenous food are in close connection.

Great progress has been made in recent years in the use of physical appliances in the treatment of skin diseases. The X-rays are very valuable, but we have learned that their application is limited to only a very few affections. They are the best remedy for epitheliomata, lumpus vulgaris and old localized patches of eczema and psoriasis. In the treatment of growths the former method of many short Roentgenizations has been found harmless, because stimulating the growth instead of destroying it and a few massive doses are now preferred. Radium which arouses considerable interest at present is too expensive to come into general use. For the benefit of those who cannot afford to get it, the discussion at the last session of the American Medical Association about its value may be mentioned. The general opinion was that its results are not superior to those after the X-ray. It is not available in deep tissues where the X-rays will not reach, and results obtained with the X-rays in minutes take hours with the radium. It may be that the effects of the radium are not sufficiently understood as yet, but it is certain that the enthusiasm will subside and give place to a rational judgment in time. The high frequency spark is a very good application to stimulate the circulation and to improve the nutrition of the tissues. For this reason it is an excellent agent in the treatment of the different alopecias. It also has an anaesthetizing action on the peripheral nerves and is useful in extensive pruritus. The carbonic acid snow has established for itself a permanent place in the therapeutics of dermatology. Its relative painlessness, dry caustic action and the production of flat, smooth scars recommend it best for the destruction of nevi, angiomata and pigmentations. A permanent removal of superfluous hair can only be accomplished with the electrolytic needle. The X-rays may be employed for large areas, but are not satisfactory and may be followed by bad cosmetic sequels.

In discussing the therapeutics in dermatology, mentioning the vaccine therapy is in place. On the whole, it is still far from satisfactory. Very good results are achieved from staphylococcus vaccines in furunculosis and from acne bacillus vaccines in certain cases of acne. Tuberculosis of the skin is sometimes benefited by repeated small doses of tuberculin.

The treatment of pruritus has been mentioned several times above. It must not be forgotten that itching is always a symptom of some internal or external disorder. The so-called idiopathic pruitus means that we do not know anything about its cause. Local applications will give only temporary relief and the removal of the cause must be the principal aim of our therapy. The constitutional causes may be "hematogenic," that is due to jaundice, uremia, diabetes, etc., or neuropathic as found in organic and functional diseases of the nervous system, as in different psychoses, neurasthenia, hysteria. The local causes may be parasites or pathological conditions involving the nerve end, as in eczema, lichen planus and urticaria.

Many skin diseases are considered too trifling by the patient to allow them to interfere with his occupation or pleasures. In such cases the physician is handicapped and is often blamed when finally the patient puts himself into the hands of the specialist and becomes quickly benefited by a short stay at the hospital. Unless the patient is willing to follow instructions religiously the physician should decline all reponsibility. Many skin diseases are extremely rebellious to all treatments and it is a common mistake to change applications every short time with no benefit to the patient. If the trouble is known to be of a chronic nature, sufficient time should be granted to notice the effects. Another valuable point is never to start with strong applications which through their effects cover up the typical lesions or set up complications. A bland treatment for a time will be comfortable to the patient and give the physician a chance to better observe the disease and to decide on the right treatment.

DISCUSSION.

DR. TROSTLER said: "I do not know why I have been asked to open the discussion of a paper on dermatology, as I make no pretentions of being a skin specialist, unless it is because I treat skin diseases with the Roentgen rays and electricity.

This association is to be congratulated upon the high character and excellent quality of the papers presented. I think Dr. Schalek's paper extremely valuable, covering as it does the important points, regarding skin conditions as they are met with by the general practitioner.

In my work I frequently have cases of psoriasis, lupers, vulgaris, barber's itch, hyperhydrosis, bromhydrosis, chronic eczemas and epithelioma referred to me for X-ray treatment. In psoriasis, I believe the X-ray to be a most efficient remedy. I am in the habit of giving full erythema doses and of continuing the treatment for some considerable time after the psoriatic patches have cleaned up. In hyperhydrosis and bromhydrosis it is usually necessary to give full epilation doses and to repeat (soon as reaction—if any has subsided) until the sweat glands are atrophied. No other treatment of this condition is curative while if persisted in, every case can be cured by the X-ray properly applied. In epithelioma, I keep my treatments just within the reaction limits, treating through filters of aluminum or leather with occasionaal unfiltered treatments. I have never had a failure in epithelioma which has not passed beyond the operable stage, and in several inoperable cases, I have succeeded in causing a cessation of the pain, lessening of the discharge and odor and making the patients more comfortable as well as prolonging their lives.

I want to particularly caution against the use of the X-rays without carefully measuring the dosage. Remember that this is a very energetic and powerful agent and as such should be as carefully used and measured as any toxic drug. Again I say, measure the doses carefully.

In some chronic skin conditions I have found stimulation by high frequency currents to be of considerable value. This is true of chronic eczemas and seborrhoea, while in varicose ulcers (when patients refuse operation for removal of the cause) this treatment will do much toward healing, stimulating granulation and keeping the circulation at its highest efficiency.

DR. KERR: Question of the treatment of the indolent eczemas of children and acne rosacea.

DR. SCHALK: Most eczemas are due to faulty diet and constipation, hence the treatment is directed towards these conditions. Rosacea is a sign of gastro-intestinal disturbance and the diet and bowels should be regulated. The circulation should be stimulated which will aid in doing away with the color and sluggishness of the blood. Local stimulating applications should be applied.

LABORATORY DEMONSTRATION.

By A. A. Johnson, M. D.

The Complement Fixation Tests and the Sourcce of Some Errors.

The reaction of complement fixation or complement deviation is quite a general one and can be used to determine the presence of different proteids, or of bacterial substances in the serum of a person suffering with an infectious disease. The most extensive use that has been made of the principle is in the "Wasserman test" of syphilis and in the tests for latent Gonorrheal infections.

In syphilis its greatest value has been in those cases that present no signs or symptoms. The congenital cases, and those cases where the primary or secondary signs were so mild that they were passed and not properly diagnosed. Recently the test has been used rather extensively as a guide to the treatment, but it must be noted that a negative reaction is an indication that the therapy has been effecctual, but is not absolute proof that the disease is cured. In these cases after three to six months a small injection of salvarsan or mercury should be given and then at the end of ten days the blood should be taken; if negative, you can safely wait one to two years before repeating the above procedure, and at the end of that time if the reaction is negative you may feel confident that the disease is sleeping and doing no harm. In these cases it appears that the small amount of treatment sensitizes the boddy and the so-called "provocative reaction" is produced.

In gonorrhea this test is of value in late cases, such as the various joint lesions, cchronic prostatitis and tubal infections. The test is also applied in the diagnosis of typhoid, pertussus, tuberculosis, in each case using the specific antigens made from several strains of the organism of the disease suspected.

The Wessermann test is not a specific "Bordet Gengou Phenomenon," but depends upon the presence of liquid substances in the antigen. While the latter named tests are specific antigen anti-body reactions. If the gonorrheal antigen is injected into a patient over several weeks and then the serum be examined it would be ffound that there is specific gonorrheal anti-bodies formed, but if the antigen used in the "Wassermann test" be injected into the body over the same length of time there would be no syphilitic anti-bodies formed. The substance used in the syphiliticc test is not a true antigen as in typhoid and gonorrhea.

In order that the test may be best done it is necessary to be located where all material can be gotten in good condition, freshly distilled water, sheep blood cells, known positive and negative controls are all necessary. Blood for the test should be taken from any of the large superficial veins with a sterile syringe and placed in a sterile container.

If hemolysis takes place or the serum becomes infected the negative serum may become positive.

Large amounts of alcohol taken before the serum is obtained may make a negative out of a positive reaction.

Re-agents not properly titrated: It is not best to use guinea pig serum in doses of 1-10 as many directions are given, but to use a dose as determined by titration before beginning the test proper. Some serum from guinea pigs contains an anti-sheep hemolysin and this should be detected in the preliminary titrations.

In cases of late syphilis, where the blood is negative the spinal fluid is positive when increasing amounts of the spinal fluid is used. The spinal fluid should always be checked with the cell count and the determination of the types of cells.

ELECTROCARDIOGRAPHIC DEMONSTRATION.

By A. E. Guenther, M. D.

In recent years the string galvanometer, devised by Einthoven has aroused considerable interest in advanced medical circles, as a means of obtaining valuable information concerning heart muscle.

The speaker, illustrated by means of electrocardiographic records projected upon a screen, the method of interpreting records obtained from abnormal hearts, as, for example, left or right sided hypertrophy, heartblock, ectopic beats, paroxysmal tachycardia, auricular flutter and auricular fibrillation.

The actual demonstration of the manner of employing the galvanometer was made upon a patient whose condition had previously been diagnosed as one of auricular fibrillation by Dr. W. N. Anderson. The photographic records confirmed the diagnosis.

HEXAMETHYLENAMIN THERAPY.

By J. D. Pilcher, M. D.

In recent years probably no drug has been used as an antiseptic in the body more than Hexamethylenamin. However, the conditions underlying the development of its bactericidal properties seem to be rather imperfectly understood. Time permits but the mere statement of a few facts pertinent to the question.

1. **The bactericidal properties of hexamethylenamin:** The drug is not itself antiseptic in practical quantities. In alkaline media various pathogenic organisms grow freely when the media contains even 2% of hexamethylenamin. Such a high percentage could of course not obtain in the body.

2. **Conditions under which hexamethylenamin is bactericidal:** In acid solutions formaldehyde is liberated from hexamethylenamin. By acid is meant true acidity as shown by a preponderance of H ions over OH ions; formaldehyde may be liberated by degrees of acidity not recognized by litmus. Formaldehyde is liberated from body fluids (urine, ascitic fluid, pancrees extracts, etc.) only on standing for some hours, on incubation or immediately on boiling.

3. Hexamethylenamin does not prevent bacterical growth in body fluids in as high concentration as 0.5% so long as the fluid has an alkaline reaction.

In acid body fluids (urine and gastric contents) formaldehyde is liberated and determines the bactericidal action. The limit of efficiency is about 1-10000 to 1-5000. If hexamethylenamin be administered to patient, the urine will contain demonstrable free formaldehyde in 98% of those showing an acid reaction, and will be absent in 98% of those showing an alkaline reaction. The amount of formaldehyde is proportional to the H ion concentration.

4. **Hexamethylenamin in the bdy:** Shortly after administration it is found in all body fluids but formaldehyde is found only in those with acid reaction viz.: urine and stomach content. Formaldehyde is not found in blood, cerebro-spinal fluid and serous fluids. Alkaline urines can be made acid by the administration of acid sodium phosphate and thus capable of liberating formaldehyde; vice versa acid urines made alkaline by acetates, etc., and rendered incapable of freeing formaldehyde.

5. **Pathological fluids** obey the same laws as normal fluids, i. e. formaldehyde is liberated only in acid fluids and in these only is

hexamethylenamin bactericidal. This holds true for urine, cerebrospinal fluid, inflammatory fluids in the gall bladder, pleuritic excudates, etc.

DISCUSSION.

DR. LANE: Question of the value of urotropin in the treatment of rheumatism.

DR. LINDQUIST: The use of urotropin in infections of sinuses produced no effect, given in doses of 10 grains every two hours night and day. In some of the steel factories in Chicago they are using it in eye injuries with a claimed 50% decrease in disastrous results from the injuries.

DR. PILCHER: In mastoiditis it has been tested and no formaldehyde was found in the exudate hence it would be of no value. The humours of the eye are alkaline in reaction hence there would be no therapeutic value there. The same principle would hold in the treatment of rheumatism. A case of typhoid can be cited in which urotropin was administered throughout the disease. A late infection of the gall bladder was obtained and examination of the material taken from the gall bladder showed numerous typhoid bacilli and considerable hexamethylenamin, but no free formaldehyde.

THURSDAY, OCTOBER 15, 1914.

CLINIC AT THE WISE MEMORIAL HOSPITAL.

By A. C. Stokes, M. D.

CASE I.—UMBILICAL HERNIA.

Mrs. E.; age 48; married; weight 280 pounds; family history, negative; personal history, negative, except that for fifteen years she had suffered with an umbilical hernia.

Physical examination showed an exceedingly large woman, very fleshy, with a large pendulous abdomen, in the center of which protruded an umbilical hernia about six inches across and about the same perpendicular dimensions.

On careful examination, it was found to be irreducible. It was determined to remove a large wedge of fat from her abdomen by the same incision through which we repaired the hernia. A transverse incision was made across the abdomen from a point about three inches just above the superior iliac spine and a curved line downward to a point exactly the same on the opposite side. Another incision was made curving upward from the same point of starting to the same point of closure. These two nicisions were continued down to the fascia of the rectus and a large wedge-shaped piece of fat removed.

The hernial sac was found to contain the entire transverse colon, a large part of the ascending and descending colon, and some of the small intestines, and a great mass of omentum. After some difficulty this entire mass of intestines was returned to the abdominal cavity with the omentum, a part of which was removed.

The fasciae of the recti muscle were then imbricated one over the other and the wound closed in the usual form.

The patient made an uninterrupted recovery. She was kept in bed for three weeks, after which she was advised to wear a large supporting binder of the Bollen type.

CASE II.—REPAIR OF CLEFT PALATE.

Master B.; aged 6; double cleft palate and hare-lip. The lips were retracted on both sides past the angle of the wing of the nose.

The median portion of the superior maxillary jaw containing the incisor teeth was turned backward and adhered to the nares.

It was remarked that this patient was rather old to attempt an operation on cleft palate, but an attempt would be made to place in proper position the displaced portion of the maxillary bone and to repair the lips.

The displaced portion of the bone was found to be held out of place by a growth forward of the septum. The septum was cut with a bone forceps, after which it was easy to reduce the displaced portion to the proper position. It was wired by passing two large wires through the fragment and through the main part of the bone itself, thus wiring the fragment in place in the maxillary cleft. The lips were then dissected up and joined together.

CASE III.—REPAIR OF HERNIA BY LOCAL ANESTHESIA.

Syrian; aged 22; family history, negative; personal history, negative, except that he had suffered for some years with a left indirect inguinal hernia.

Operation by local anaesthesia. Patient prepared in the ordinary way. Three quarters of an hour before operation a hypodermic of ¼ grain of morphine and 1-100 atrophin was given. Usual preparation in the operating room, except instead of general anaestehtic the line of incision was infiltrated by a solution of novocain, made as follows: Novocain, ten grains; adrealin chloride, solution 1-1000; one dram; normal salt solution to make one ounce.

After the line on the skin was infiltrated the region about the external ring was also infiiltrated through the skin. An incision was now made down to the fascia of the external oblique, after which the region around the exit of the ilio-hypogastric nerve was injected, that is, in the upper portion of the wound. The external ring was then brought into view and the fascia about it infiltrated. The ring was now opened and a Kochner's director was passed into the inguinal canal and the fascia of the external oblique incised bringing into view the arching fibers of the internal oblique and the cremasteric fascia. Along the outer left hand side of the cremasteric fascia could be seen a nerve. Upon pinching this nerve the patient felt considerable pain. We then blocked the nerve in its upper exit near the internal ring by the use of the infiltrating solution, after which no sensation could be felt by the patient from the nerve. This was the inguinal branch of the ilio-inguinal and the second nerve of the hernia from without in. We then removed the cremasteric fascia and attempted to remove the infundibular form of fascia, but the patient began to suffer pain, due to the third nerve of the hernia, namely, the genital branch of the genito-crural, which passed posteriorly and beneath the cord. We then injected the fascia and cord around at a point near the internal ring, after which we were able to remove the infundibular form of fascia and dissect out the sac without further pain.

The hernial wound was then closed in the usual way by the Bassini method. The patient suffered no pain, except at the points mentioned above. We talked to him during the entire operation, at the end of which he arose from the table and walked to his bed. We made an uninterrupted recovery.

Dr. A. C. Cotton of Chicago, Professor of Pediatrics, University of Illinois, was to be present and deliver an address on "Infant Morbidity," but due to the serious illness of Mrs. Cotton, Dr. Cotton was unable to be present. Without special preparation, Dr. H. M. McClanahan kindly consented to occupy his hour.

WISE MEMORIAL HOSPITAL
Clinic, Thursday, October 15, 1914

CHILDS SAVINGS INSTITUTE
Clinic, Thursday, October 15, 1914

At Child Saving Institute, Thursday, October 15, 1914.

By H. M. McClanahan, M. D.

CASE I.—TETANY.

History—Female child, age one year, seven months. Has been backward and hypersensitive. Reported weight of seven pounds at seven months. Digestion easily disturbed, temperature rises upon very slight provocation.

Peculiar contraction of hands noticed first about two months ago. Fingers flexed at metacarpo-phalangeal joints and phalanges extended. Thumbs adducted. Wrist flexed and abducted. Feet extended, plantar surface arched, first phalanges flexed.

Discussion—This is a very mild case of tetany, in fact, it might easily pass unobserved. The etiology is very obscure. It seems to be a hyper-irritability of the nervous or muscular system. In younger children it is often associated with rickets. Gastro-intestinal intoxication seems to be an exciting factor. The disturbance of secretion of the parathyroids has been considered as a cause on account of the development of a similar condition upon exterpation of the parathyroids in animals. The English view is that it is caused by a disturbance of calcium metabolism. It is well for you to bear in mind that tetany may be associated with defective development of the brain itself that may not be manifest until the child is older. I have seen one such case. Dr. Sedgwick of Minneapolis has made a study of tetany by means of electrical reactions and any of you interested in the subject would do well to write him for his article.

The condition of tetany perhaps often exists without being recognized. The treatment consists primarily in improving the child's general condition, especially any digestive disturbances. In many cases cow's milk is contraindicated and it will be necessary to employ a wet nurse. Where the condition is associated with laryngospasm then the bromids are indicated.

CASE II.—HEMORRHAGIC TENDENCY.

History—Male infant, age two months, instrumental delivery. Father and mother healthy.

Fed upon condensed milk first few weeks. Scrotum began to enlarge when three weeks old, left side. Oozing of blood from mouth first recorded at age of about one month. Recurred Oct. 19th, 25th and 28th. Oozing of blood from scrotum Oct. 20th and 28th. Petechial rash developed over entire body. Wasserman negative.

Discussion—The unusual feature of this bleeding is its late appearance, which would cause suspicions of hemophilia or syphilis. Simple so-called hemorrhage of the new-born rarely occurs after the first month. The condition at least contra-indicates any operative procedure for the relief of the hydrocele.

The greatest advance in the treatment of hemorrhagic cases is the horse serum injection. Adrenalin solution may be applied locally with benefit but as a last resort the serum is necessary. This need not be horse serum. Human serum is perhaps even better. An instance may be cited in which a young practitioner who had a severe case and no horse serum available, bled himself from the arm and injected the pure blood into the infant's rectum with good results. The blood might be obtained from some member of the family. This infant has received two injections of serum. While reviewing these notes for publication, I wish to add that this infant has gained in weight during the last three weeks. The hydrocele has increased in size and that there has been another slight spontaneous hemorrhage.

CASE II—HYDROCEPHALUS.

History—Female infant, age 17 months. Hydrocephalic condition existing as long as known. Mental faculties inferior. Good health, increase in weight. Digests easily.

Lumbar puncture done twice, once last winter and once at clinic. Considerable fluid drained off.

Discussion—This is only interesting from the standpoint of recognition, for very little can be done. If the tension is very great it should be relieved by lumbar puncture. This is to be done in this case every six weeks as the pressure of the fluid interferes with the development of the brain.

INFANTILE DIARRHOEA.

By H. M. McClanahan, M. D.

There are two conflicting theories of the etiology of infantile diarrhoea. The old theory attributes it to pathogenic organisms in the bowel. The new theory considers that it is the result of food irritations. A bio-chemical reaction injures the mucosa and the infections are secondary. During the hot weather the resistance of the individual is less, metabolism is not so good and consequently the food irritation is greater.

My own theory is that in normal breast feeding there will be no trouble if there is no excessive putrefaction, even during the hot weather. But in the bottle feeding, the food is artificial and a different bio-chemical reaction is required for its absorption. This results in injury to the mucosa, there is a solution of continuity and infection follows. The entire process is thus a combination of both causes working in conjunction. Northrup, who has made hundreds of postmortems, states that the postmortem shows very little pathology in the bowel.

Postmortem shows very little wrong with the bowel and many of the most fatal cases perhaps die of a toxemia either from bacterial toxin or foreign proteid entering the circulation. The importance of the foreign proteid as a toxin has been emphasized very much recently and has replaced the theory of a bacterial toxin in many instances. We may very reasonably expect to see a serum treatment for this form of toxemia in the future.

The stool in infantile diarrhoea is small, has a very foul odor, considerable mucous, but rarely pus. The stools may vary from ten to twenty in twenty-four hours. Where there is much tenesmus we may be sure that there is trouble in the colon. In all cases, however, the first essential step in the treatment is to clean out the proteid from the bowel. For this calomel is very effective, followed by castor oil with thorough irrigation. After the bowels have been cleaned out the child should not go too long without food, as it is very essential that nourishment be maintained. If the stools react acid to litmus an alkali remedy should be given. Bi-carbonate of soda combined with prepared chalk may be given in the gruel.

The food should have a high starch content as the starches are known to be anti-putrefactive, also malt gruel is very good. Sour milk is a distinct advance as the lactic acid is anti-putrefactive. Likewise milk is good. Lactone tablets may be used. The Bulgarian bacillus is good, but we are not certain of the strength of the tablet so it is better to use them outside of the body. Then when the milk becomes sour we can be certain of the viability of the bacillus. The value of egg albumen as a food has been overestimated. Some men are even going so far as to say that it is possible for the digestion to cause a splitting off of a foreign proteid which is toxic.

A very valuable food which can be substituted for milk when the baby cannot take milk is Soie bean. Cases have been observed in which weight has been gained upon this food. The directions for using are found on the can. It is often a very useful stepping stone to milk, but should not be continued for any great length of time. It causes a stool of a peculiar color and odor.

Of drugs to be used eudoxine is perhaps the best, grain ¼ to ½ four times a day. The active element is iodine. For a child one year old the following prescription is suggested:

Infantile Diarrhoea.

Eudoxine	Gr. viii.
Amyli	Gr. xvi.
Pv. Cretae Comp	Gr. vl.
Saccharn Lactis	Dr. 1.

Fiant Chartae No. xvi.
One every three hours.

Bismuth disguises the stool and although recommended by Holt is not of much use. Other treatment is largely symptomatic, as sponging, etc. If the diarrhoea is dyssenteric in type, very frequent, opium in some form is indicated, as in the following suppository to be given twice a day.

Extracti Belladonnae	Gr. 1-10
Pulvis opii	Gr. 1-10
Cocainae Hydrochloride	Gr. 1-10
Olei Theobromatis	qs.

Make suppositories No. 1.

If there is much blood in the stool, two grains of tannic acid may be added to this suppository, or an injection of one drachm of tannic acid in a pint of water, as injection may produce better results.

Sometimes when the patient refuses to take food, simply washing out the mouth with whiskey and water will cause feeding. Lavage should always be employed where there is complete anorexia, as it will sometimes save a life.

TOXEMIAS OF PREGNANCY.

By A. B. Somers, M. D.

The term, Toxemias of Pregnancy, means that the blood contains toxins of alkaloidal nature due to an abnormal metabolism. The liver, kidneys, thyroid, or even the placenta may be at fault. The average woman is not in normal condition, and this fact plus the txara demands on metabolism and elimination made by pregnancy will account for a large percentage of the toxemias of pregnancy.

There is every grade of toxemia from the mild form that is promptly relieved by treatment directed towards a restricted diet and an increased elimination to the fulminating type with severe convulsions and coma ending in death either by cerebral hemorrhage or profound systemic poisoning.

During the earlier months of pregnancy, the disease presents itself as "pernicious vomiting." We must recognize a normal physiologic vomiting of pregnancy, and it is not always easy to determine when a given case passes from the normal to the pathological. It may be so mild that there will be only a slight nausea in the morning or so severe that all foods and liquids are forcibly ejected. The urine becomes scant, highly colored and may contain albumin casts, acetone, indican, sugar or blood. The pulse becomes rapid and weak, the skin wrinkled, emaciation proceeds rapidly, delirium, somnolence and coma occur, and the patient dies of acute starvation. The disease lasts from four to twelve weeks but may be fatal in two weeks. The fulminating cases are the more toxic. Other conditions usually attended by vomiting aggravate this disease. Some cases of vomiting may be explained as reflex or neurotic, but these cases do not assume the rapidly serious proportions of toxemic vomiting.

There is no complication of obstetric practice barring the antepartum hemorrhages more dangerous than antepartum convulsions with coma. It is impossible to classify the toxemias of pregnancy for lack of definite knowledge of the pathological condition, and say this is liver toxemia, kidney toxemia or to state definitely just what is the underlying cause, so we classify them under the one head, "eclampsia."

The rare cases where a woman has all the symptoms of eclampsia without convulsions, we call eclampsia just the same. The kidney of pregnancy may be a forerunner of a real nephritis. The convulsive attack may occur suddenly without warning, but as a rule there are premonitory symptoms. I attach very much importance to insomnia, headache, disturbances of vision, twitching of muscles, edema. These symptoms may extend over a very brief period or over several weeks. In a fatal case, under my observation, the urinary findings were negative, only low specific gravity, but there was increasing dropsy covering several weeks' time; there were no convulsions and artificial delivery was resorted to, but the case went on from bad to worse and died of acute nephritis, six weeks after delivery.

This summer a patient of mine, running a light weight urine, and a moderate edema, presented herself six weeks before time for confinement with a urine containing a moderate amount of albumen and a pulse tension of two hundred without headache or other eclamptic symptoms. She was put in bed in the care of a trained nurse, on a milk and water diet and my usual medication, and she went on to thirty-eight weeks of pregnancy and was delivered of twins. The urine contained albumen until, and following labor about ten days, when it cleared up, and has remained clear since. The dropsy and high tension disappeared quite promptly after the patient was put to bed. My experience with twin pregnancies in primipara is that they suffer as a rule with kidney insufficiency, dropsy, albumen, and labor comes on prematurely, and this in young women that enjoyed good health until pregnancy occurred, and even during the earlier months of pregnancy.

Regarding the management of toxemia. During the early months of pregnancy, the digestive symptoms are usually relieved by a careful attention to diet and elimination by the digestive apparatus. Little or no food for two or more days with stimulation of liver and abundance of water gives a good start, to be followed by restricted diet, and if the nausea is confined to the morning hours, no diet but a cup or two of boiling water or a cup of coffee, until middle of forenoon, the patient remaining in bed until noon. I have found alkaline laxatives such as milk of magnesia, Rochelle Salt or sodium phosphate satisfactory remedies.

In the toxemic varieties, a more radical course of treatment must be adopted. The patient must be put in bed and all food and liquids forbidden by mouth. Small doses of calomel, gr. 1-10 to 1-4 may be given every hour for six or eight hours, followed by an ounce of castor oil, to be repeated if required. The most urgent demand of all, is to supply the system with liquids, and the urgency depends on how long continued and how severe the vomiting has been. In cases where the skin has become wrinkled, the pulse small, weak and frequent, the prompt administration of two quarts of normal salt solution, hypodermically, usually has a pronounced effect on the well being of the patient. This salt solution may be made mildly alkaline by the addition of soda bicarbonate. This may be followed by salt solution with alkali and glucose by the colon, eight ounces every three hours and may be continued indefinitely. My general plan of treatment in toxemic cases is about as follows:

During the early months of pregnancy with a history extending over one or more weeks, where the stomach expels all food and liquids—absolute quiet in bed, clearing of the alimentary canal with calomel and oil, filling the depleted blood vessels with normal salt solution, first hypodermically if the conditions are urgent. and after the alimentary canal has been emptied or even before, eight ounces of salt solution per rectum every three hours. I am in the habit of adding two per cent of glucose to the salt solution for its effect on the liver and sufficient alkali to render the urine alkaline. For this purpose, I was taught many years ago, that the potassium salts with a vegetable acid are more effective than sodium salts of any kind and of the three vegetable acid salts, tartrate, acetate, and citrate the citrate is the most effective, so I add twenty to thirty grains of citrate of potassium to each eight ounces of salt solution and repeat every three hours until the urine is alkaline then give less frequently but sufficiently often to keep the urine alkaline. This is good treatment of all the severe toxemias of pregnancy no matter what other treatment is instituted. If in early pregnancy the vomiting ceases, the general well being of the patient improves, in two or three days the patient can take boiling water or hot broths by the stomach in moderate quantities, to be followed by hot milk with gruel in two or three days, and later, milk toast, and later the more soild foods. Any medication will be for the relief of symptoms. If insomnia exists, it may be relieved by bromides added to the salt solution, or codeine, or small doses of morphine may be given hypodermically. It is exceedingly rare that relief will not be obtained by this plan but if the symptoms continue with rapid small pulse, emptying the uterus may become necessary and these pernicious cases should not be delayed too long, or it may be of no avail, the condition going on from bad to worse until death ends the scene. My experience in the cases that do not yield to treatment is, that the mental condition of the patient is an important item to deal with. In a case that comes to mind, there was a sullen determination on the part of the patient and husband that she would not go through the pregnancy which we could not overcome. That was relieved very promptly with all the other symptoms as soon as an abortion was produced.

In the later months of pregnancy with eclampsia, the conditions are somewhat more difficult. The general consensus of opinion among obstetricians is that with the first convulsion, the uterus should be emptied—but why wait for the first convulsion? I have known two women with serious toxemia without convulsions to go on from bad to worse after artificial delivery and die several weeks later with acute uremic symptoms. Then also there is a minority of obstetricians that are getting good results without immediate delivery. It seems then that this question must be settled by environment and the immediate difficulties that surround each individual case. During the last year, I have seen two alarming cases of post partum eclampsia, the first convulsions following labor twelve and twenty-four hours. I occasionally see ante-partum cases apparently precipitated by the labor and continuing postpartum. I occasionally see ante-partum cases, for example a primipara thirty weeks pregnant with a close cervix or possibly thirty-six weeks with a close cervix; then also there are cases of eclampsia that occur in hospitals or where they can easily be put in a hospital, and there are cases that are remote from all hospital accommodations. The cases occuring ante-partum are the most serious, those occurring ante-partum, less serious, and those occurring post-partum less serious than any.

What is a universal rule that may be applied to all of these cases under all these conditions? First—dilutions of toxins and elimination, and this may be brought about under all of these varying conditions by a thorough emptying of the alimentary canal and the use of a large quantity of water with salt, glucose and an alkali introduced by any of the methods enumerated, intravenously, hypodermically, per rectum or by the mouth, but preferably by the skin or colon. But considering the immediate danger of cerebral hemorrhage from convulsions and the danger of repeated convulsions after the preliminary attack, have we more effective methods, and are we justified in waiting for the slower methods of dilution and elimination? Perhaps it is heredity, but I must confess that my soul thirsts for blood in these desperate cases and I know of nothing so effective as to start a hypodermiclysis apparatus to work with, two needles if you have them, binding the arm and opening a vein at the elbow and drawing fifteen, twenty or even thirty ounces of blood—bleed until one gets results and keep up the hypodermoclysis until at least two times as much solution has been introduced as blood withdrawn. It is wonderful the results obtained in this way. Let me ask, have you ever learned to bleed? I have seen good men fail to get blood because they did not know how to bleed, and then excuse their inability by saying the blood was too thick to run. The effects are immediate by removing a quantity of toxic blood and then reducing the toxicity of the remaining blood with salt solution. Later, the colonic method of introducing liquids may be followed up. It is surprising how many cases of convulsions will cease immediately.

In intrapartum cases very often labor has gone on sufficiently so that delivery is easy, under these circumstances there is no question about immediate delivery being the right thing to do under ether, but in the antepartum cases with close cervix remote from hospital advantages, it is doubtful about immediate delivery being advisable. The difficulties and shock of forcible dilatation and delivery are not to be considered. On the other hand, if the environment is favorable for Cesarean section, either abdominal or vaginal, that is doubtless good treatment.

Veratrum viride may be considered as a substitute for bleeding and I have had good results from its use. Give fifteen to twenty drops hypodermically and repeat every thirty minutes until the pulse falls to sixty and proceed with the dilution and elimination treatment. Babies should not nurse for several days or a week, as the mother's milk is toxic. The latter treatment of these cases requires iron and quinine with a liberal diet, meat being reduced to a minimum.

In this discussion, I have purposely omitted any reference to blood tension, as I consider that only a symptom, but being an important indication of the underlying condition, I would not recommend any special treatment for the increased tension, only as the treatment is directed to underlying conditions. Relieve the conditions and the pulse tension will disappear.

DISCUSSION.

DR. POTTER: An important point to be emphasized is the necessity of always having in mind, early in pregnancy, the possibility of a toxemia. When the doctor is interviewed regarding an expected labor he should instruct the husband in the early symptoms of a toxemia and request that he be notified when any of these appear.

DR. B. W. HALL: The medical societies have done nothing towards the instruction of the public in the signs and dangers of puerperal toxemias as they have in the case of infectious diseases. It seems that some such action should be taken in the form of printed pamphlets of instruction.

DR. CARSON: A case is cited of a disturbed mental condition developing early in pregnancy. The patient wandered about in a dazed condition and was unapproachable. A dead four-months fetus was removed and within a week the mental condition had disappeared and within four weeks the patient went home.

NEURASTHENIA.

By J. M. Aikin, M. D.

Nerve exhaustion is an old clinical picture that about fifty years since was christened neurasthenia. A more recent analysis of its syndrome has given us the word psychasthenia, in cases where the content of the clinical picture is psychic, and neurasthenia when the dominant symptoms are neuritic. Neurasthenia does not obscure the intelligence, but rather refines it, inclining it to introspection. Billings calls it "nervous weakness often accompanied by perverted nervous disorders." C. L. Dana characterizes it as "a chronic functional nervous disorder, having morbid nervous weakness and irritability." Alfred Gordon sums it up as a "nervous exhaustion." Church and Peterson use the term "irritable weakness," which quite agrees with F. X. Dercum's explanation that "neurasthenia literally means without nervous strength." I think the latter characterization well expresses our understanding of that disorder. In our present want of knowledge regarding its pathology it must be classed as a functional disorder. Clinical evidence alone must determine the diagnosis and empiricism its treatment. That fact makes the text-book and laboratory student somewhat reluctant in believing a patient is really sick who alleges great bodily fatigue without adequate cause for it, and who is unable to coerce the mind to volitional acts. The classification into congenital and acquired neurasthenia is a refinement in diagnosis that may add a ray of hope on the prognosis, but it fails to elucidate plans for effective treatment. If we are zealous to maintain rational medicine our reasoning should proceed from the physical to the mental departments of the personality. Why should the disorders known as neurasthenia, hysteria and epilepsy be denied a physical basis, when we reluctantly admit a diagnosis as that of typhoid, diphtheria, or syphilis, unless the physical cause is demonstrated? Digestive disorders are a constant symptom in neurasthenia. But neurasthenia is not incompatible with a good appetitie (not hunger), absence of much stomach or intestinal discomfort and a free daily bowel evacuation. Ability to ingest large quantities of food and eliminate a corresponding volume of refuse by the bowels and kidneys is not a sure evidence of good metabolism. A greater ratio of people are neurasthenics from overworked digestive organs than from overwork in school or business. The presence of an imperative idea, recognized by its possessor as not true, is a mental coercion. Purely mental treatment is as ineffective as the man who attempts to lift himself upstairs by his boot straps. Those people who assert their heart ceases pulsating for a whole minute, who faint and float away, yet remain conscious, who affirm they do not sleep more than one or two hours in twenty-four, yet maintain their weight and average bodily nutrition, are neurasthenics. The normal mind is not conscious of its detailed working. Attention is fixed on **results,** not on how the processes of reason store up conclusions. The person who complains he cannot fix his attention, remember what he reads, and is losing his mind, is a neurasthenic. If the mental obsession becomes a fixed delusion the possessor has passed the border line into the domain of insanity. The neurasthenic expresses the fear that his bodily weakness will surely terminate in paralysis or his mind will surely become a blank. Neurasthenics analyze all the subjective phenomena which occurs to them. Efficient treatment of a case of neurasthenia depends pre-eminently on knowledge of the potential in the individual tactful management in the diet, rest and exercise that will bring about the highest possible condition of nutrition. The Wier Mitchell rest-cure is not advisable in every case. The good effects of isolation from visitors, the prone position, and excessive feeding in a few cases, does not justify its application to every neurasthenic. In my experience many cases yield to quite the opposite therapeutic measures. I am certain that quiet, persistent, intelligent and honest direction of the patient for developing the whole personality, will cure many, and benefit even a large number of neurasthenics, than is possible by drugs alone. Neurasthenia is of all the disorders physicians are expected to diagnose, treat and cure, the most unsatisfactory. My plan is:

First: Obtain a complete history of the disorder from patient and friends, then make the necessary physical examination to assure myself of negative findings in the vital organs and nervous system. That rule I think should obtain in every case—even though not necessary to our diagnosis—to secure belief in us, by the patient.

Second—Indicate the course, duration and probable prognosis under the existing environment of the patient. This prepares the family and patient to our proposal to remove the patient to a new environment (be it an institution, quiet rural community or exciting urban residence) and submission, if not co-operation, to our plan of treatment. The gravity of neurasthenia demands these requirements for its efficient treatment. If it be criminal to neglect the use of antitoxin in diphtheria, our failure to insist on applying the most rational treatment in neurasthenia, is at least reprehensible. Auto-intoxication, principally in the alimentary canal, is a common factor to be removed and prevented by habits of proper alimentation. A liberal variety of food, but restricted in amounts, and not more than three meals—for an adult—in twenty-fours hours, is my dietetic regime till the digestive organs are able to use a full diet. The indigestion of one to two quarts of hot water, lemonade or orangeade, during each twenty-four hour period—given in small amounts between meals—is an effective therapeutic measure. Electricity, the vibrator and massage are useful adjuncts in selected cases. The warm—100° F.—tub bath or hot sponge bath, followed by an olive oil rub, induces rest and sleep. Massa hydrargyri, sodium phosphate and hot normal salt flushings of the bowels are my favorite means for cleansing the intestinal tract. My observation prescribes any preparation of opium for anodyne or hypnotic effects. The application of hot packs for relief of pain, and the warm bath, with small doses of veronal and trional for sleep, give the best results.

DISCUSSION.

DR. H. R. CARSON: The neurasthenic, either because of the nature of his malady, or because he has received no sympathetic attention, or, for both reasons, comes with a detailed account of all of his sufferings, and often brings voluminous notes which he begs us to read. A sympathetic hearing of this recital often causes the patient to feel that at least here is one who really understands him. And fortunate the patient is, if this one is a physician of broad understanding, who will treat his physical disorder as well as his neurasthenia. The line between functional and organic disorders is not a sharply defined one and many "nervous" disorders are on an organic basis. Neurasthenia is a nervous asthenia, taking shape as fatigue, motor weakness, sexual frigidity, etc., with the physical symptoms of loss of power of concentration, of memory, of will, of ability to work, and disturbances of the affect life. Of Saville's 157 cases 102 (65 per cent) presented symptoms of a gastric disorder, either before, during or after the neurasthenic symptoms. Glenard, writing in 1885, attributed neurasthenia to a visceroptosis. Beard, in a book published in 1880, ascribed the symptom complex to disturbance between nerve waste and nerve repair, resulting in a condition of abnormal instability of the cardovescular system, with a tendency to local hyperaemia. The important consideration is that neurasthenia is an organic, and not a psychic disorder. With an instrument specially devised by himself, Hartenburg has shown it to be of central rather than peripheral origin. The simple nervous depression is not due to hypotonus of the muscles. Not only are the muscular activities involved; the psychic activity is diminished with a sensation of fatigue. Voluntary attention is lessened. Patients complain of their inability to fix attention on any intellectual effiort. The patient reads without remembering. When he has read a paragraph he does not remember any of it. Familiar names are not recalled. The neurasthenic's insight into his affairs is weakened. His grasp is less sure. He is dizzy, and dull in all his activities. The sensation of fatigue is ever present. He shuns society. Life seems not worth living, yet he always hopes for improvement. He seems to himself unreal. There is a sense of depressionalization. It is the disease of chronic nervous depression.

The treatment as given by Dr. Aikin leaves little for me to add. The stomach of a neurasthenic has been described as a tired stomach Easily digested foods should be given.Meat and eggs which give strength; boiled vegetables, baring broths; game, fish, cabbage, cauliflower, cheese, salads, raw fruit, milk diet. All food should be masticated with care. Combat vegetarianism. The patient may lie down one-half to one hour after meals, and hot fomentations be applied to the abdomen. It is well to remember that the patient to be cured must live in his usual environment so the healing processes must as far as possible take place with the patient not removed from his environment. Electricity and massage, carefully used, may have their place. Since the disease is not essentially psychic psychotherapeutics is not the sovereign remedy. The personality of the wise physician may count for much, and he can do much in re-education or re-adaptation.

"EMERGENICS IN PEDIATRICS."

By H. M. CcClanahan, M. D.

Hemorrhage in the new born was formerly the cause of death. This usually occurred within the first five days. There are various types of hemorrhage as from the naval, the stomach and bowels, the mouth, the vagina, into the skin and internal hemorrhages. However, all these hemorrhages probably depend upon the same cause, excepting those in congenital lues and in infections. The cause has something to do with the blood so that the fibrin is not formed. Now, the majority of these cases can be saved by the administration of serum. Some authorities think that transfusion is better but the administration of serum is certainly simpler and is often sufficient and does not prevent the employment of transfusion later.

Sudden death in the very young is a depressing thing and often causes unjust reproach upon the physician. I have seen two cases of sudden death due to an enlarged thymus gland, the condition called status lyphaticus. Both these cases the cause of death established by postmortem. In both the death came suddenly and entirely unexpectedly.

Toxins in the mother's milk in the condition just described by Dr. Somers may cause death in the first few days, probably only where there is some acute disease in the mother producing some poisons in the milk. In older infants at the breast there is a possibility of a sudden accident from some temporary change in the milk. I have seen two cases coming under this head. In one case the mother had done a heavy washing on a very hot day and then nursed her infant. Within an hour it had violent convulsions and was in extreme condition although it ultimately recovered. In that case the mother's temperature was 104 at the time of my visit. I may add that I had her pump the breast for twenty-four hours and then resume nursing. The other case occurred in a mother who had received a telegram of the death of a near relative. Soon after the first nursing following the news the infant was taken violently sick with convulsions.

Another accident, the smothering of the infant by "covering" or by "laying over," as it is called in England, that is, the infant being close to its mother during sleep is suffocated, and there is a law in England preventing the mother from sleeping with her infant.

With a bottle baby regurgitation of the food from the stomach and aspiration into the larynx is a cause of sudden death. While this is more likely to occur in a delicate or premature infant, I know of a case this past summer where it occurred in an infant four months old. In one case I was able by compressing the trachea to express into the throat a firm clot of milk that had completely occluded the lumen of the larynx.

In burns, whether from hot water or fire, it is a safe rule to remember that when over half of the body is burned that the prognosis is absolutely unfavorable.This is no doubt due to the profound shock to hundreds of terminal nerve filiaments.

Convulsions in infants and children may safely be called emergencies. There is nothing I can say to you new in the way of treatment. Certain general facts may be noted. First, in previously healthy children convulsions are almost never dangerous and are usually due to some form of indigestion. Second, they are not serious when prodromal with some acute disease as scarlet fever or measles. However, convulsions in whooping-cough should always excite alarm, as in this condition the convulsions may be associated with a toxic spasm of the muscles of the larynz leading to asphyxiation. Third, convulsions occurring in the course of an acute disease have a serious prognostic import.

In conclusion: I believe there is nothing so discouraging to the physician as the unexpected loss of a patient. The doctor who says that every case he sees is dangerous will be considered an alarmist because the majority of infants with acute sickness recover. Diplomacy is required in giving a diagnosis and the physician should be first honest with himself and his patients. In the face of acute symptoms it is well to reply that while you are hopeful you would not give an absolute opinion until you have had time to study the progress of the case.

DISCUSSION.

DR. SOMERS: In regard to burns, within the first twenty-four or forty-eight hours death is usually due to shock. In some severe burns the patient dies six or seven days later of a toxemia on the same principal as a woman in a peurperal convulsion. Hence, after the shock has been bridged over there is a constant effort to combat the toxemia. A wet dressing should be the first application to a burn, with no attempt at a removal of any of the burned tissue. Later when there has been a separation of the sluff, removal is permissible and is really better as it prevents absorption.

DR. CHRISTIE: Eczema in children is given in text-books as a cause of sudden death. No reason is ever given. Is it due to a toxemia?

DR. McDONALD: What kind of a moist dressing would be best to use in a burn?

DR. SOMERS: A zinc oxide dressing is the most convenient moist dressing.

DR. LANE: A case of powder burn was treated first with Fuller's earth and bismuth, then with a clean, dry, dressing when the exudation was controlled. The moist dressing pulls off the granulations and is not so good.

DR. POTTER: Another method of treatment advocated is to place the patient in an insect proof cage under an electric fan. The principle is to dry the moist surface which is a receptacle for infection from the outside.

DR. McCLANNAHAN, concluding: Dr. Christie's question as to the cause of sudden death in eczema is an important one. I have known of one case recently where this was probably the cause. I have read somewhere—I think in the British Journal of Children's Diseases—the theory advanced that it was due to the irritation of the sensory nerve filiaments, producing a condition of exhaustion of the central motor nerves probably in a manner so well brought out by Dr. Criel in his writings on surgical shock.

THE USE OF RADIUM IN DERMATOLOGY AND CANCER.

By William H. Cameron, M .D., Pittsburgh, Pa.

Mr. President and Gentlemen:

This evening we will discuss the application of radium in dermatology and cancer, and as it is not possible to cover the entire subject in a paper of this character, I will limit my remarks to the experimental work we have attempted at the clinic in Pittsburgh.

In that we have had placed at our disposal a larger amount of radium element than possessed by any other individual, and because this work was under my direct supervision, I feel that I may speak with some authority on the subject. Furthermore, I have been in a position to become acquainted with the technic employed and dosage used by a majority of the men in England and in this country and this latter information has contributed not a little to my knowledge on the subject.

We have applied radium in single doses ranging from 4 to 1,010 milligrams of radium element, the shortest period of time in the treatment of a single case being about 30 milligram hours and the largest 65,000 milligram hours. The majority of cases received radiation from

10 to 250 milligrams of radium element, the time period of each application ranging from 15 minutes to 24 hours.

It is to be noted that I speak in terms of radium element, and not, as some writers, in terms of radium bromide, or in terms of the supposed radioactivity of the salt used. I do this because it is only the radium element content of any salt that is therapeutically active and, therfore, is, as clearly pointed out by the International Committee on the Radium Standard, the only scientific method of stating dosage.

To illustrate: I have stated that the maximum dose employed was 1,010 milligrams of radium element. I could just as easily have said that I used over two thousand milligrams of pure radium bromide, and it would have seemed to be a much larger amount. The bromine in the radium bromide, however, is of no therapeutic value whatever.

Again I spoke of using four milligrams of radium element. This amount happened to be in such a form that I could, according to one terminology, state the radium used was of 2 million activity and thus convey the idea that I have supplied a large amount, when in reality my dose was sufficient only in the most trivial dermatological condition.

Before taking up the subject further, I will give you a practical demonstration of the penetrating powers of the beta and gamma rays. This point, as you are aware, is the subject of much discussion. On the one hand we have physicists such as Duane of Harvard, Shearer of Cornell and Viol of Pittsburgh, who say that the X-ray cannot possibly reproduce the short gamma rays that are produced by radium. Consequently the gamma rays of the X-ray do not have an equal amount of penetration.

At the recent meeting of the American Roentgen Ray Society, Duane, by quoting a long series of experiments including the new Coolidge tube. demonstrated this beyond a doubt. If there are any roentgenologists present, I am sure they will agree that the amount of screening around this small tube will effectually cut off all the X-rays they can produce.

In the early days of the clinic, it was my inclination to accept only those cases considered beyond control by other measures. Perhaps I had better say that this condition was forced upon me for, naturally surgery—early surgery—held the field, and it was difficult to be convincing, especially in the face of the many conflicting claims regarding the true value of radium. Many of the cases accepted had already had the advantage of surgery, and "surgical failures" provided me with experience in dosage and technic which later proved of value where I could conscientiously recommend radium in preference to "questionable" surgery, with its resulting deforming scars.

When possible it has also been my aim to ray cases not generally accepted as being suitable for radium. For instance, we have not attempted to do experimental raying with uterine fibroids or uterine hemorrhage, because this work has been so well carried out by a few foreigners and by Kelly and Burnam in this country. It has only been recently that we have devoted much time to superficial growths, for I considered the work of Wickham and Degrais, Abbe, The London Radium Institute. and many others, as proving, beyond a question, the value of radium in such conditions.

In consequence of this attitude, my results are not what I could have made them.

I trust you will observe also that I use the term "clinically cured." I adopt this term in reporting cases wherein not enough time has elapsed before we can say that there will be no return of the condition. The London Radium Institute report such results as "improved," and I consider this institution the best available authority.

Now I am not going to weary you with statistics or give you a number of long case reports, but will quote, as briefly as possible, a few case histories, giving as much of the technic as necessary for a clear understanding. I have purposely selected the most difficult cases from each group.

Case of Inoperable Cancer of the Uterus and Rectum in a Patient 50 Years of Age.

Patient suffered for last five years with profuse leucorrhea and in January, 1913, noticed a profuse bloody discharge from vagina. Discharge had disagreeable odor. Examined by gynaecologists and found inoperable. I examined her May 27, 1913, in conjunction with Dr. C——— and found ulceration over entire cervix and posterior cul-de-sac. Rectum involved. Indurated area extensive. Frequent hemorrhage. Foul discharge and intense pain. Vomiting and other symptoms of general infection. Because patient was the wife of a physician the treatment was undertaken, it being understood that nothing but relief of pain could be expected.

Applied from 100 to 200 milligrams of radium element, screened with 3 mm. lead, rubber and silver. This was further screened with gauze and packed against the cervix and in the cul-de-sac. The individual treatments lasted from 14 to 18 hours. Applications made every 3 days. After 6 applications, two tubes of 50 milligrams radium element each were placed in the rectum and two in the posterior cul-de-sac, using cross fire method for 16 hours. This was repeated in 2 days.

After the first application, hemorrhage stopped and pain was relieved. After the fifth, the odor of the discharge had entirely disappeared. After the treatment to rectum, patient had normal bowel movements. After two weeks patient was able to sit up and could retain food in stomach.

Although I was reluctant to take this patient, it taught me that radium is, perhaps, the best palliative agent to use in this utterly hopeless condition. To relieve pain, to stop the hemorrhage, to clear up the odor—is something, and to prolong life in comparative comfort is, I believe, something more.

In commenting on this case, Dr. C——— says:

"My opinion of the use of radium in this particular case is that it did all you promised for it, namely, that it stopped the hemorrhage and relieved the pain to some extent. Its influence upon the bleeding was absolute, she not having any hemorrhage from the time you began to use the radium. In the beginning there was a marked decrease in the amount of pain, but later on in the patient's illness it again recurred, although not to the same extent that existed before the radium was used. For a time her general condition was markedly improved, which lasted for a period of about 3 weeks, when she began to decline. I will add, too, that the ulceration which was present on the cervix uteri had practically disappered under the influence of radium."

Patient died October 31, 1913, 157 days after treatment was started.

Inoperable Cancer of the Uterus in a Patient 61 Years of Age.

Past, personal and family history negative.

About two months ago noticed backache and pains in the abdomen. At the same time noticed stain of blood on linen. No uterine pain whatever. Date of admission to clinic, February 9, 1914.

Examination—Uterus enlarged, hard and tightly bound down. Entire cervix involved in ulceration. Vaginal mucosa considerably thickened. Muco-purulent discharge from cervix.

Reds—4, 450, 000. Whites—9, 960. Hgb.—75%. Poly's.—75%.

Treatment—February 10, 11 and 12, 52 milligrams of radium element, screened with .5 mm. silver and 1 mm. rubber and lead for 3 hours.

February 13, 14—100 milligrams in vagina for 5 hours.

February 16, 17—52 milligrams in cervix for 2 hours.

February 20, 21, 23 and 24—50 milligrams in cervix or vagina for 2 hour periods.

February 26—92 milligrams in cervix for 2 hours.

Notes—February 26—Patient had chill. Signs of septic absorption.

March 7—Cancerous tissue sloughing. Vaginal walls give evidence of burn.

March 20—Patient discharged from clinic. Temperature still elevated.

April 5—Family physician reports general condition not improved. Gradual failure with progressive weakness.

July 27—The following letter was received from the patient's daughter:

"At the present time we have every hope for a recovery. Mother has complete control of all her faculties and you would never know she has been ill. For one month after she returned home from the hospital I employed a trained nurse. Since that time I have taken absolute charge of her, and she has been given morphine only five times, and then only one-third of a grain.

"For the first two months after she returned home we gave her a tablet for bowel movement, but for nearly ten weeks now the action has been perfectly naturally, and she has been given no aid whatever. Her kidneys are in perfect action and her heart normal. She eats three good meals a day and the heat in no way affects her. While she does not sleep as well as I would like her to, still she does not feel any ill effect from that source. She has absolutely no pain whatever, and says she feels fine where the trouble existed. She is surely getting stronger and better, reads the daily papers and is keeping alert on current subjects. There is still a discharge but a very little, just enough to know it is there, but with very little odor.

"I hope you will not think me too elated and too over confident, but when I see the results I cannot help but express my appreciation to those who aided me. I cannot understand why the medical world will not open their eyes, when it has done what it has, and I have had constantly before me one or two men who spoke in Memorial Hall at the Cancer Meeting, and I would love to retaliate. Even if it does not produce a cure, it has done wonders in my mother's case."

On October 1, 1914, the following was received from her daughter:

"My mother has been quite well all summer, spending a greater part of her time on the porch. She has had absolutely no pain all summer, and had perfect bowel movement without medicine every morning. There is a slight discharge of very light color, not to be compared with what it was before treatment."

This is a splendid example of the toxic condition which we sometimes encounter when raying extensive lesions in cavities that are subject to mixed infections. I noted this condition early, reported it, and adopted the following rules to overcome same:

1. Wherever possible establish good drainage.

2. Best possible surgical cleanliness.

3. Stop raying before diseased tissue begins to slough and do not ray again until the condition of the underlying structure is noted.

4. Under no circumstances open up blood channels by rough manipulation, during or after raying, at least until reaction has entirely disappeared.

I am sure you will agree with me that these two cases demonstrate the value of radium in inoperable cases of cancer of the uterus, not as a cure, but as an agent that will the more easily relieve distressing symptoms and make the last days of the victim tolerable. Up to the present time I have never had a favorable uterine case submitted. By a favorable case I mean one that has progressed just a little beyond what the surgeons call "favorable." When I do I will ray the local ulcerated area, wait until all reaction has subsided and then, if possible, I will operate, following by additional raying. If localized metastasis is present in accessible glands I will give them a massive dose, remove, and immediately after operation ray the base of the wound.

Recurrent Cancer of the Breast in a Patient 52 Years of Age, Operated Fourteen Years Ago.

Recurrence standing for about a year. Examined February 13, 1914, showing mass about the size of a hen's egg, situated to right of the sternum. It is hard and immovable with a sinus in the center, which is the seat of considerable hemorrhage. Ulcerated surface extends for an area of a half-inch around this sinus. There is considerable pain at times. Patient also presents an epithelioma about the size of a half dollar on the back of the right hand and one about the size of a dime on the back of the left hand.

Treatment—50 milligrams of radium element, screened with .5 mm. lead and silver and .5 mm. of rubber, strapped in place over the breast for 1 hour every days for 7 days.

Epithelioma on the right hand was rayed with 50 milligrams of radium element screened with 1 mm. of lead and rubber and placed over the area for 15 minutes on four occasions. Same procedure with epithelioma on the back of left hand.

February 28, 1914—Mass less painful. Hemorrhage lessened and size of mass somewhat reduced.

March 10, 1914—Condition on right hand is entirely well, with no resulting scar. It is practically impossible to tell the situation of the ulcerated surface. Mass in breast is less painful and still further reduced in size.

March 13 to April 13—Patient has had treatments three times a week for 1 hour each time with 50 milligrams of radium element.

April 20, 1914—Not much change in the condition of the patient's breast. Epithelioma on the right hand and the left hand marked "clinically cured."

June 10—Pain in breast has all disappeared. No discharge. Mass reduced in size.

September 1—Ulcerated tissue around fistula covered with healthy skin tissue. Fistula closed. No discharge whatever. No pain and patient's general condition greatly improved. I have considered this a case of prophylactic raying only. From time to time I have caused a violent reaction and during this reaction discontinued treatment. On account of the absolute fixation of this mass to the underlying structure, the case was considered inoperable.

Recurrent Cancer of the Breast in a Patient 77 Years of Age.

Four years ago left breast was amputated and two and a half years later the growth re-appeared at the site of the original growth. Second operation in December, 1912, removal of the recurrent growth and scraping of the bone.

About 10 months ago had severe pain at the site of the operation and the growth returned. Removed under local anaesthesia. Pain at the same site was again manifest last October, 6 months ago, since when it has become more or less constant. Ulceration at the site of the growth for several months, which has been gradually enlarging and of late has been constantly discharging a sero-purulent fluid.

A small tumor mass in the left parotid gland excised at the time of the first operation also returning. Left arm is swollen and its motion is limited since operation.

On admission, April 27th, 1914, patient had discharging ulcer at about the center of the field of operation, about 4x5 centimeters square. The skin for some distance around the ulcer is very sensitive and the area of redness surrounding the border of the ulcer is about 1 centimeter in width. No section was taken for examination.

From April 28 to May 5, inclusive—50 milligrams of radium element screened with silver tube and 1.5 mm. rubber, applied daily from 1 to 3 hours.

May 6, 7, 9 and 14—100 milligrams with same screening applied for 3 hours at each treatment.

May 20—Treatment discontinued, at which time the pain was greatly relieved and the ulcer looked cleaner and was beginning to fill in with healthy skin tissue.

June 2—Patient re-admitted to the hospital for further treatment. Ulcerated surface almost entirely covered over. Practically no pain has been felt since last treatment.

June 3, 4 and 6—50 milligrams, screened with 1 mm. lead and silver and .5 mm. rubber applied to ulcerated surface for 3 hours each day.

August 1 and October 10—Reports from this patient states that she is still free from pain and swelling in the arm is somewhat reduced. Ulcerated surface entirely covered.

My only idea in the treatment of this patient was for the relief of pain, and in passing will say, aside from the hypodermic injections of morphine which she was accustomed to taking, radium gave so much relief that she was able to give up the morphine entirely.

Osteo-Sarcoma in a Male 55 Years of Age, Located in the Right Breast.

Two years ago patient noticed lump in his right breast, which constantly grew larger. Reported to physician 10 months ago.

Received X-Ray treatment for 4 months without any material change or apparent checking of the growth.

Upon examination the mass is about the size of a large orange. It is firmly attached to the ribs and overlying skin, with slight involvement of the axillary glands. It was decided to remove this mass and operation took place on April 7, 1914. As the mass was found to be firmly attached to the ribs and cartilege, it was impossible to remove all the diseased tissue.

Immediately following the operation 210 milligrams of radium element were buried in the wound for 12 hours. On account of the poor surgical apposition of the skin, sloughing of the flaps took place.

April 27—Patient discharged from the hospital, presenting a large sloughing area, but much improved in general health.

July 10—Visited patient at home and still found wound open, but no sign of recurrence.

September 10—Patient reported found a small mass about the size of a hen's egg on the border of the wound. This was cross-fired with 6 tubes containing 25 milligrams of radium element each, and the surgeon requested to remove the mass.

The present condition of the patient is not encouraging.

Adenocarcinoma of the Breast in a Patient 73 Years of Age.

Father and one brother died of cancer and one sister of tuberculosis. About 6 years ago she first noticed a small lump in the breast about the size of a beech nut. Began to enlarge after 4 years. About one year ago ulceration began, at which time the severe pain continued and there was slight bleeding. Condition grew rapidly worse and the mass was about the size of an orange on the date of admission, February 22nd. Skin surface ulcerated and discharging a thin pus. Right and left axillary and left supra-clavicular glands enlarged.

Patient operated on February 26, outlying glands not excised. At the close of operation 120 milligrams of radium element, screened with 2 mm. lead and rubber were buried in the center of the wound of operation for 8 hours.

February 27—92 milligrams placed in the wound for 8 hours, screened as before.

March 14—Treatment of glands was begun. 100 milligrams placed over the glands of the axillae and the clavicle for 1 hour at each point.

March 18—Same treatment as on the 14th.

March 20, 21 and 23—100 milligrams over various glands for 1 hour at each point.

March 24, 27 and 28—109 milligrams over the glands for 2 hours at each point.

March 28—Patient discharged from the hospital much improved both in general and local conditions. Glands much reduced in size.

May 20—Patient re-entered the hospital and 100 milligrams of radium element was applied over the left axillary gland for 4 hours.

May 21—Same treatment as previous day.

May 26—Same treatment again.

Notes—April 6—The wound of operation was entirely healed except at a slight point from original transplantation of radium. Supra-clavicular glands slightly palpable. Right and left axillary glands smaller and softer. General condition good.

April 20—Skin over clavicular glands considerably burned. Surgeon in the case reports that when he last examined the patient two months after the treatment was discontinued, she was still in good condition.

July 1—Surgeon reports that there is still no sign of recurrence and that the glands are greatly reduced in size.

Inoperable Cancer of the Right Breast and Operable Cancer of the Left Breast in the Same Patient, Also Presenting Enlargement of the Thyroid Gland.

In December, 1913, patient noticed a slight swelling in the right breast. This was reported to her physician in February, at which time the mass appeared to be freely movable and about the size of a marble.

Patient refused to have any interference whatever. Mass began to grow rapidly in size and at the time of admission to the hospital, August 22, ulcerated surface extended for 3½ inches around the nipple. Indurated area extended 2 inches around this, and the nipple was retracted and the mass fairly attached to the ribs. It was decidedly inoperable.

On August 22 36 tubes of radium, amounting in all to 710 milligrams of radium element, were placed over the mass, the screening being 3 inches of felt and .5 mm. of silver.

Three hundred and 10 milligrams of radium element were also applied over the enlarged thyroid gland. They were left in place for 8 hours. On September 2nd 810 milligrams of radium element, arranged in the same manner as above, were placed over the breast for 9 hours.

September 26—Patient re-entered hospital. Indurated mass was considerably lessened and extensive swelling in the glands and tissue of the axilla was greatly reduced. Ulcerated surface presented absolutely no sign of burn. The pain, which was formerly a prominent symptom, had completely disappeared.

The mass in the left breast was about the size of a hen's egg. It was cross-fired with 6 tubes of radium, each containing 25 milligrams of radium element, applied for 18 hours.

September 30—This mass was removed and in the incision was buried 50 milligrams of radium element from 3:30 P. M. until 1 P. M. October 1st.

This case is simply quoted to cite the different methods of procedure in raying the inoperable breast by a massive dose and the operable breast by a combinaiton of radium and surgery. It will certainly be interesting to watch the progress of this case.

From the above cases you will note how I have attempted to treat inoperable cancer of the breast. Where possible, surgery and radium were used in combination. At the present time I think this is the proper method of treating all cases of cancer of the breast.

Case of Inoperable Cancer of the Tonsil.

Physician, 60 years of age, condition standing about 6 months. Reported at clinic Octboer 25, 1913. General condition was bad. Could swallow liquids but with difficulty. Although patient was unable to open mouth for a good view of parts involved, it was ascertained that the entire right tonsil area and the right side of the tongue at base were involved. Patient stated that process had extended rapidly since tissue had been removed for diagnostic purposes. Glandular involvement extensive. Sanitary condition of mouth very bad. Had this patient been other than a physician I would not have even considered an attempt to ray.

Gastrostomy advised for the purpose of feeding, but refused.

I considered that the only hope was short time periods of raying with massive doses. We could remove the upper incisors, which were on a movable bridge, thus making possible the placing of an applicator. Because of too much bulk, however, the radium tubes could not be sufficiently screened.

We applied about 100 milligrams of radium element every day for 1 to 2 hour periods, and rayed the glands for 4 hour periods with 200 milligrams of radium element. The procedure was carried out for 5 or 7 days. At the end of this time patient seemed somewhat improved in that he could swallow better and even take a little solid food. He was able to wash out mouth frequently.

The reaction appeared a few days later and was, because of necessary heroic measures, violent. Gastrostomy was again urged and performed two days later. To add to conditions the stomach wound became infected and at the patient's request he was sent home.

November 20 the following was received from the patient's wife:

"While the Doctor seems somewhat weaker than when we left Pittsburgh, his condition seemingly is not considerably worse. The pulse is of fair quality and there is no temperature. He has retained nourishment (through tube). The mass under the right ear has decreased in size. The mouth is in bad condition and he is unable to swallow anything except ice water. At times he feels stronger and wants to go on with radium if you think advisable."

Nothing further was attempted, however, and the patient died about 10 days later.

Previous to seeing this case, I had noted other patients who gave a history wherein it was definitely stated that the condition grew rapidly worse after the removal of specimen for examination. I refer, of course, to suspicious lesions on mucous surfaces.

This was so noticeable in Dr. W———'s case that I took up the question with several noted surgeons. One of them told me that an attempt to remove even the smallest cancerous area of the tonsil always caused rapid infiltration into the surrounding glands and he had given up all operative procedures in this particular locality. This caused me to adopt the rule of not permitting specimens to be removed from suspicious lesions on mucous surfaces before treatment. This rule is hard on diagnosis and scientific data, but, after all, it is the patient who must be considered.

Cancer of the Tonsil in a Female 67 Years of Age.

Six years ago lump appeared on left side of face under ear. In last 2 months the mass grew from the size of an egg to that of a large orange. Admitted to Eye and Ear Hospital on March 18, 1913. Mass was removed, jugular vein tied off. Discharged April 15 with small discharging sinus.

Two months later was re-admitted to the hospital and sinus curetted. Wound eventually healed and patient suffered no discomfort for 6 months. Then pain in old scar with paralysis of cheek and tongue caused alarm. Again admitted to hospital September 10th, 1913. Examination showed evidence in the old scar of return of the growth, together with involvement of all surrounding glands. Left tonsil and small area on left side of tongue involved and process evidently rapidly extending.

General condition of patient not good. Difficulty in opening mouth. Decided to push radium to limit and patient was advised to expect extensive burns.

Applied 100 milligrams, screened with 2 mm. silver, lead and rubber for 4 hours, daily for 7 days. Applied almost constantly for same period, 200 milligrmas radium element, screened with 4 mm. of silver, lead and rubber, and gauze, to all surrounding glands.

Patient then sent home.

September 23 was advised that patient was in bad shape, burns cf mouth were extensive and causing considerable discomfort and that she could live but a few days.

To my surprise, two months later patient reported and on examination found condition in tonsil and on tongue had entirely cleared up. The enlargement in glands, with exception of small area below left ear, had disappeared and induration in old scar lessened. Advised to have further raying on enlargement near ear. She was given one or two applications at another institution. Six months later she still had some enlargement in this area and she reported to my clinic for additional raying. At this time her tongue and throat gave absolutely no evidence of return of the condition and the patient's general condition seemed greatly improved. She arrived at the hospital at 10 A. M.

The next day at 1 P. M. she had a chill, developed pneumonia, and died two days later.

This incidental accident deprived me of what I was fully justified in considering a most remarkable clinical recovery. It also taught me that we are justified in pushing treatment even to the extent of severe burns in these desperate cases.

I realized that the possiblity of increasing absorption from an already existing mixed infected area by producing burns was an element that must be given consideration. Radium is not, strictly speaking, a germicide; therefore, does not have much destructive powers to bacteria. The patient should, then, be given additional fighting ability by strict attention to general condition and by using every effort towards securing surgical cleanliness in the parts being rayed.

All my eye, ear, nose, mouth and throat cases are instructed to use mouth or eye wash, nasal douche every hour during treatment and until burns are healed.

Speaking of radium burns: This patient was, to me, an ideal demonstration of the difference between the X-ray and the radium burn. In the tense tissue of the old scar I produced an extensive burn. At the end of two months scarcely any evidence of this remained.

Cancer of Tonsil in Female 76 Years of Age.

Had trouble wih her throat for several months. Tonsilectomy performed a few weeks ago. Examination of removed tonsil showed it to be carcinomatous. Seemed to be recurring as ulcer appeared again at base. Admitted to clinic July 14th.

Treatment—July 14 to July 23—Daily treatment for 1 hour each day with 50 milligrams radium element, screened with 2½ mm. of lead, silver and rubber.

July 20—50 micrograms of radium injected into the vein. This because of its tonic effect.

July 23—Patient sent home until reaction was over.

August 18 to 22—Daily application of 50 milligrams of radium element, screened with .5 mm. silver and rubber tissue.

August 22—Patient again sent home.

September 25—Case reported before the Medical Society of the State of Pennsylvania by operating surgeon. Said to give every evidence of a clinical cure.

In connection with cancer of the tonsil, wish to state that Dr. Hill of London reports unusual success with radium in this condition. At the last meeting of the British Medical Association at Aberdeen, Scotland, Dr. Hill stated in his address that operation for cancer on mucous surfaces should be discontinued and radium substituted.

Cancer of Tongue in Male 46 Years of Age.

About 6 months ago, broke a tooth. It irritated tongue and tooth was removed 4 months later. At this time dentist noticed tumor on tongue.

On March 1, 1914, and on May 1 exposure to massive doses of X-ray. Entered clinic June 1, 1914. Examination showed ulcerated area near base of tongue on right side, oval shape, smooth, with inflamed edges. Articulation not distinct.

June 2 to June 12—50 milligrams of radium element screened with .5 mm. silver, .5 mm. lead and .5 mm. rubber daily for 1 to 3 hours. After the third application relief from pain was quite marked.

June 12—Patient discharged. Ulcer appeared cleaner and reduced in size. Reaction very severe.

September 12—Received report from attending physician, stating that patient seemed to improve for a time, after which the process extended very rapidly and the patient died.

Cancer of Tongue in Male Aged 61.

Ten years ago noticed slight sore spot on left side of tongue, which was relieved by mouth wash. Did not bother him again until 1913, at which time it was not relieved as previously and continued to enlarge until it measured ⅝x⅜ inches.

Began X-ray treatment, but discontinued same until about 3 weeks ago when he received a few more treatments. On admission to clinic March 3rd two-thirds of the lateral surface of tongue was involved. Considerable sloughing had taken place, leaving a large cavity.

Treatment—March 5—Wasserman reaction, positive. As patient had never received any constitutional treatment of any description was placed on same at once.

March 5 to 10—92 milligrams radium element screened with 1 mm. lead and 1 mm. of rubber applied for 1 hour.

March 6—Given intravenous injection of 50 micrograms radium element.

March 28 to April 10—Received 13 applications of 109 milligrams radium element for 1 hour each time.

April 14—Intravenous injection of salvarsan.

April 20—Tongue lesion partly healed. Left tonsil enlarged.

May 5—Tongue lesion still partly healed. Gums still swollen and tender. Can only open mouth about two finger breadths. Mental attitude very bad. Pain in parotid glands severe.

July 6—Patient in bad condition. Original lesion on tongue somewhat improved, but process evidently extending over base of tongue and tonsils.

Both these tongue cases improved somewhat at first but could not be held. This experience was noted at the London Radium Institute. Recently, however, they are having better success by stitching the tubes into place.

Dr. Bissell of New York also reports a case clinically cured after 6 months by this method of treatment.

I will adopt this method where possible, as it is extremely difficult to hold applicators in place, consequently additional irritation is set up.

It is also noted that these cases were first treated by X-ray. In using radium after X-ray I invariably find a condition that is called radio-sensative. In other words we are liable to set up pain in the parts being rayed. Just why this is, I am not able to state, but it has frequently obliged me to cut down the dosage. Naturally, I prefer not to ray a case after X-ray has been used.

Melanotic Sarcoma Made of the Eye in a Man 45 Years of Age.

Operated twice with rapid recurrence each time. When examined found recurred mass which entirely filled up cavity. Incision made into mass and a 50 milligram tube screened with 2½ mm. of lead and rubber buried for 12 hours. After reaction had subsided mass was removed and same tube was buried in cavity for 12 hours. This patient was presented to the recent meeting of the Medical Society of the State of Pennsylvania 6 months after treatment, and there is no sign of recurrence.

Melanotic Sarcoma in a Man Aged 55 Years.

Same procedure as followed in previous case. This patient was also presented at the Pennsylvania Medical Society meeting, and 5 months after treatment shows wound healthy with no sign of recurrence.

Melanotic Sarcoma in a Man Aged 68.

Two years ago noticed small spot on sclera of left eye. Eye soon became swollen and painful. Operated December, 1913. Uneventful recovery.

Six weeks later small growth was removed from left cheek. Patient began to wear artificial eye two weeks after operation.

Nine weeks after operation began to recur. Later the mass in the cheek began to recur. Had X-ray treatment for 2 or 3 weeks.

On admission to clinic, May 5, 1914, found left orbit entirely filled with dark reddish-black soft mass.

May 5—Same method employed as in previous cases.

May 11—Mass removed and 100 milligrams placed in cavity for 6 hours.

May 19—200 milligrams applied to cavity for 5 hours.

June 11—Consistent improvement, but swelling in left parotid shows signs of enlargement.

July 21—Patient re-admitted for operation on mass in left parotid gland, but was not rayed.

August 14—Mass returning in parotid gland. Rayed with 50 milligrams.

August 17, 19 and 20—Same treatment as August 14.

August 29—All inflamatory reaction subsided. Mass in gland reduced in size. Still small nodule in scar of old operation. Applied 100 milligrams for 2 hours over these points.

September 15—Patient presented good appearance. Do not expect, however, to hold this case as the involved tissue is too extensive.

Osteo-Sarcoma in a Man 50 Years of Age.

Location on left of spine in glutical region. First noticed in 1912, operated on March 23, 1913. Recurred rapidly and operated again June 3, 1913. This time wound was left open and X-ray used. Again rapidly recurred and when examined found mass size of orange which had pushed aside incision and was bare of skin. Given radiation, using cross-fire method from 2 twenty milligram varnish applicators, strapped in place and applied all night, until mass had completely flattened out.

Was then sent to hospital and deorganized mass lifted out. The entire base of wound was then thoroughly rayed.

On October 1, 1913, there seemed to be a little suspicious spot in upper margin of wound. This was incised and 150 milligrams well screened was buried for 20 hours.

On October 1, 1914, the wound was still open, gradually filling in. There is absolutely no sign of recurrence and it is gradually filling with healthy granulation tissue.

While using the X-ray he was severely burned on opposite side and this burn is still not entirely healed.

He also received a severe burn from the 150 milligrams of radium element, and this is almost, if not entirely, healed up.

Altogether this man received 65,000 milligram hours of radium, by far the largest recorded accumulative dose ever administered.

Osteo-Sarcoma in a Man 35 Years of Age.

Twelve years ago had left lateral upper incisor extracted, piece of root remaining. Gave trouble at intervals. July 10, 1913, piece of root sloughed through gums and was removed by dentist. A week later noticed on either side soreness and looseness.

August 5, operation with extensive curetting. Parts began to swell two weeks after operation.

From last of August to December 27 X-ray used almost daily and pushed to point of superficial burn.

Entered radium clinic December 29. Mass involved left superior maxillary bone, bulging out cheek considerably. Process extended over left side of palate, involving lower plate of orbit and left superior alveolar process and glands of neck. Large opening into antrum.

January 3, 1914, to February 12—Treatment almost daily, with from 50 to 150 milligrams of radium element applied from 2 to 5½ hours and exposing all accessible parts of growth and glands.

From this time until March 26 various amounts up to 200 milligrams were applied at intervals, using the cross-fire method, one tube being placed in nose, two tubes in the mouth, one in antrum and the balance applied externally.

At times there was improvement but at no time was the process under control.

Patient died April 18, 1914.

My experience in this case, together with three others of almost a similar nature, compared with results obtained in a number of beginning cases, has demonstrated the folly of attempting to ray cases wherein we find an extensive destruction of the periosteum. I have also noticed in raying rodent ulcers that this is a good rule to follow.

Case of Osteo-Sarcoma of the Knee in a Male 63 Years of Age.

This case is interesting in that it demonstrated the effect of radium on ulcerated surfaces as compared with surgery, X-ray and carbon dioxide snow.

Four years ago patient noticed small nodule on outer surface of knee. Two years ago it had grown to be the size of a man's fist. Removed by operation December, 1911.

Developed erysipelas following operation. Two other tumors developed in old scar, which were removed in March, 1912, after which he had X-ray treatment for three months.

Recurrence in June, 1912, operated again in December, 1913, followed by X-ray.

Two days before entering clinic a large, round nodule above ulcerated surface was treated with carbon dioxide snow.

Examination February 9, 1914, showed a large circular discharging ulcer about 3½x4½ inches. This area had numerous elevated masses scattered over the surface.

I realized because of the deep-seated infection and the extensive involvement of bone that operation was the only course. I therefore decided to ray as a prophylactic measure, and I submit a picture of case showing the superficial area that was already under control when I turned the case over to the surgeon for amputation.

The pathology of this case is also very interesting:

"In the center of the wound section shows degenerated material with cell nuclei barely visible and outline of tumor cells lost. Considerable increase of fibrous tissue is present. At margin there are places where cells are clearly defined, spindle shape in form and stain deeply. There is this also in some of the deeper portions of the tissue and here mitotic figures are common. The periosteum is involved and although the shaft is thin, there is an increase of fat in the medullary portion. The muscle cells are mostly degenerated, but in places their nuclei have increased in large numbers, even forming giant cells."

Cancer of Rectum in Male 50 Years of Age.

Noticed swelling in rectum two and a half months ago. Had cramps and painful passages for past two months. Operated April 22, complete removal of rectum and cancerous mass. Gut amputated with cautery and sacral anus constructed. Evidence of return at this point.

May 6—50 milligrams radium element buried in new rectum for 8 hours and 50 in wound sinus just anterior to new rectum.

May 10—100 milligrams inside new rectum for 1 hour and 50 in wound sinus for 4 hours.

May 20—All treatment discontinued on account of temperature elevation and purulent discharge from wound.

June 20—Patient at home and apparently quite well.

Cancer of Rectum in Female 30 Years of Age.

Operation for hemorrhoids, but operation abandoned when nature and extent of disease discovered. When patient came to clinic she presented all symptoms of general absorption and local condition had extended until it involved tissue about 6 inches in extent. Pain was intense.

She was rayed with 100 milligrams radium element, well screened, the tube being placed in catheter and moved to various locations of mass and retained in place as long as could be tolerated. Pain was relieved and growth apparently checked.

This patient should have had false rectum established but she was in no condition to stand operation. She lived about two months after being sent home and the only thing accomplished was relief of pain with more comfort in defecation.

Cancer of Rectum in a Female 55 Years of Age.

Condition discovered at time of operation to relieve fissure. Small piece of tissue removed and found to be cancer. Was sent to clinic about 10 days after operation. This was a good case to ray as wound was left open.

The case was given 5 applications, using 50 milligrams in sinus and 50 milligrams in rectum. One year after raying there is no sign of return and patient is in excellent health.

I believe radium will prove of considerable benefit in cancer of the rectum if cases are taken early. In extensive cases or in cases where it is necessary to ray extensively it is, in my opinion, necessary to make false anus, so as to prevent irritation and possibly a mixed infection by having stools pass over part being rayed.

Cancer of the Stomach in a Male About 50 Years of Age.

This is a case of experimental raying in a hopeless case to develop technic.

We passed a tube of 100 milligrams of radium element through a gastroscope and held it in place for 30 minutes, position of tube being ascertained by quick exposure to X-ray.

The patient experienced no bad symptoms following.

Because of short application, difficulty in ascertaining exact spot to be rayed, and the necessity of an anaesthetic every time applied, this method cannot be used.

The only feasible method is by making gastric fistula.

Cancer of Oesophagus.

Three cases were treated by one of my medical friends. All cases were desperate. The radium was passed with aid of oesophagealscope and no difficulty is experienced in hands of experts. Position of tubes is ascertained by X-ray picture.

Tube of 50 and 100 milligrams of radium element used. This tube is made of gold, over which hard rubber is braized. Marked improvement for a time was noticed in all cases.

In one case the improvement lasted for about 5 months.

I believe that favorable cases of cancer of the oesophagus will be controlled with proper dosage and expert technic.

Carcinoma of Alveolar Process in Female 41 Years of Age.

Patient first noticed small mass just above the upper incisor teeth. Dentist treated it with acid. Reported to physician after three weeks and it was removed and examined. In two months it returned and grew rapidly. No pain or discomfort.

Reported to clinic March 1, 1914, ulcerated surface about the size of a dime, surrounding tissue indurated.

March 1 to June 11—Short applications, not exceeding 30 minutes, with 50 milligrams of radium element, .5 mm. silver and rubber.

October 1—Patient examined and there is absolutely no sign of the disease. It is hardly possible to determine the infected area.

What would surgery accomplished in this case? What would the patient look like if the usual proper surgical measures had been carried out?

Myxo-Sarcoma in a Man Aged 62.

For the past two months noticed sore spot on upper jaw, getting progressively worse. Examination showed rounded mass over last molar about the size of a penny.

Operation June 18, unerupted tooth found and extracted. Alveolar process and part of jaw bone curretted.

June 19—Embedded 50 milligram of radium element screened with ½ mm. silver, ½ mm .of lead and 1 mm. of rubber for 5 hours.

July 1—Wound entirely healed. No evidence of disease in tissue.

Cancer of Liver and Gall Bladder in Patient 70 Years of Age.

Operation 4 years ago, and small stone removed from gall bladder. Operated again April 28, 1914. Surgeon discovered pea-sized nodules on under surface of liver and gall bladder. These were found to be carcinoma.

May 7—100 milligrams screened with ½ mm. silver, 1 mm. of lead and ½ mm. rubber buried in wound after removal of drainage tube for 12 hours.

May 8—Same treatment.

May 15—Same treatment.

May 30—Physician reports that patient is at home and in excellent health.

September 3—Patient died with symptoms of general absorption, as reported by attending physician.

Carcinoma (Bascellular Type) in Woman 68 Years of Age.

There has been a small growth in left eyebrow for four years. Gradual increase in size.

Examination shows tumor mass on outer supra-orbital ridge, irregular outline and nodular. Growth of same character on middle portion of nose and small spot on tip of nose.

March 2, 1914—50 milligrams screened with .5 mm. lead, .5 mm. silver and rubber placed for ½ hour on each spot.

Repeated at frequent intervals until April 6.

April 20—Patient discharged as clinically cured.

September 1—No sign of recurrence.

Epithelioma (Rodent Ulcer Type) of Lower Left Eye Lid in a Man 38 Years Old.

April 20—25 milligrams screened with 2 mm. lead and rubber applied for 1 hour.

April 29—Same treatment.

May 18—50 milligrams radium element applied for 20 minutes.

September 24—No sign of recurrence and scar scarcely visible.

Epithelioma of the Lip in a Man 45 Years of Age.

Ulcerated surface about the size of dime. Standing for eight months or so. Recently extending rapidly.

Applied 50 milligrams of radium element every other day for four treatments.

Six months after treatment was discontinued no sign of ulceration was present. Induration all disappeared and flexibility restored. Scar scarcely noticeable.

During the past two years I have had many such skin and mucous membrane lesions as the above referred to me. Some of them minus a "lip" or part of the "nose" and all recurring. Surgery plus deforming scars almost as unsightly as the original growth and recurrence.

Compare these results with many that I have treated and many more that I have seen treated with radium. Suppose you yourself had to be treated. Which method would you select?

In my immediate family a patient developed a rapidly growing epithelioma on the right hand. He does not have it today, but he does have all his hand.

Large Pigmented Naevus in a Child Aged 1 Year.

Circular in contour, embracing cheek, ear, scalp and neck, slightly elevated throughout, black in color and covered with dense growth of soft hair.

Six applications of 50 milligrams of radium element, screened with .5 mm. silver and rubber screening, applied at 15 different points for 5 minutes at each point.

Four applications of same applied from 5 to 15 minutes at various points.

July 5—Inflammatory reaction over entire area began and was very severe.

July 27—Inflammatory reaction subsided.

August 13—Fully recovered from burn. At several points the pigmentation is entirely removed. Entire surface more normal in appearance and free from growth of hair.

This is the worst type of cases of this character but I think by careful work we can remove a large part of the growth.

Pigmented Naevus in a Girl of 18 Years.

Situated on left forearm. Size of silver dollar. Considerably elevated. Black in color and covered with long hair.

Application of 10 milligrams of radium element in the form of a varnish applicator bare, every day for a total of 84 minutes.

After this series of raying there was a reaction.

Later rayed with 10 milligrams radium element in a varnish applicator for a total period of 60 minutes.

Shortly after entire formation dropped off leaving skin surface of slightly reddish appearance.

The ordinary birth-mark, mole, wart, etc., yield readily to radium. Angiomas are easily controlled and the cosmetic results are remarkable.

In the treatment of local lesions of chronic eczema radium does prompt work. In one extensive case of psoriasis an ointment containing 200 micrograms of radium element to the ounce of ointment material, produced prompt results. The condition returned, however, about 6 months later.

The technic of radium application is not difficult. Each case, however, must be considered by itself and the dosage adapted to suit the case and not, as many do, try to adapt the case to the dose.

I believe that the first effect of the rays is upon the vessel walls. Too small a dose will stimulate circulation and increase cell resistance. Therefore failure with possible stimulation of the growth is noted by men who possess inadequate amounts for the special case they attempted to treat. Shut off your blood supply, then your cell protoplasm will the more readily be destroyed and finally the rays affect the nuclei and you control the situation.

It is unfortunate that premature announcements were made regarding the value of radium because it held back the true investigator. Results are sometimes startling but it is the "why" and "wherefore" that must be known.

The physics, chemistry and therapy of radium is developing rapidly and in two years has made great strides. During the next year much more will develop for, generally, it is in the hands of good clinical men, research wrokers and universities.

Only just recently in an eastern university work has been begun to ascertain the value of radium in brain tumors.

Radium can be accurately measured, consequently we know the dosage used,—the best foundation for good work. We know how to screen, to cut off the various rays,—another point gained. I have shown you some of its penerating powers and you yourself can judge of its value in this direction.

Being purely local in effect, it cannot hope to cope with general metastasis. So the radiologist, like the surgeon, says: "Send your cases early."

I wish to say that radium workers have absolutely no excuse for ignorance as to the amount of radium element they possess. The time for saying I treated this patient with radium has gone by. What I must say is that I used so many milligrams of radium element, screened in such and such a manner, for a certain length of time, for so many applications.

In conclusion:

Radium has an advantage over other physical or mechanical agents, because it is more easily controlled and handled. In that there is absolutely no upkeep to radium and the fact that it can be used twenty-four hours a day for years and years makes it in reality more economical to use. It is safe both for the operator and the patient, is applied without pain or the necessity of an anaesthetic and when a result is secured it has enabled the patient to preserve much healthy tissue that would otherwise have to be sacrificed.

CLASSIFICATION OF THE VARIOUS METHODS EMPLOYED IN THE INTERNAL ADMINISTRATION OF RADIUM EMANATION AND RADIUM SALTS.

Presented by William H. Cameron, M. D., and Charles H. Viol, Ph. D., Pittsburgh, Pa.

In this communication it is our intention to suggest a classification for the various methods of employing radium emanation and radium salts in internal medicine. We believe that such a classification is necessary in order that the terminology of current literature on the subject may be generally understood. Furthermore, we hope to acquaint the medical profession at large not only with the relative therapeutic value of the several methods, but the economic value as well.

One of us had had the opportunity of making a comparative study of the clinical results obtained by the use of the methods described and the other of us made a study of the physics and chemistry of the radio-active substances, the analytical methods of determining these and the mechanical principles underlying the economic application of radium emanation. Our conclusions, therefore, are based on a most careful study of the entire subject.

Before taking up our clasification, something must be said about dosage and the terms used to express same. The literature dealing with the use of radium salts, radium emanation and other radioactive substances in internal medicine is only less voluminous than that dealing with the local application of the rays of radium and mesothorium. Many units have been used to express concentrations of radium emanation and quantities of radium salts. This led to uncertainty and confusion when these substances were used and it was recognized that there was a great need for an international standard and a better defined unit for expressing the concentration of radium emanation. As a result of the work of the committee appointed by the Congress of Radiology and Electricity at the Brussels meeting in 1910, Madam Curie in 1911 prepared a standard which was accepted in 1912 as the International Radium Standard. A prototype standard was also prepared and is kept at Vienna in the Institute for Radium Research of the Vienna Academy of Sciences. Standards which have been carefully compared with the International Standard and the Vienna Secondary Standard are now in the possession of different countries, including the United States Bureau of Standards at Washington. At the above mentioned Congress it was further decided to call the quantity of radium emanation which is in equilibrium with one gram of radium element—the "curie" in honor of M. and Mme. Curie. The curie is a very large unit and, for ordinary use, it is more convenient to express quantities of radium emanation in terms of the milli curie and microcurie, these being respectively one thousandth and one millionth of a curie and equal to the radium emanation in equilibrium with one milligram and one microgram of radium element.

On the basis of Rutherford and Soddy's "distintegration theory" the accumulation of radium emanation may be explained as follows: All the radioactive elements are disintegrating or transmuting at a rate that is definite and invariable for each radio-element. Thus, the time required for the distintegration of half of any quantity of radium is about 1,750 years. For radium emanation the period of half decay is 3.85 days. In any given quantity of radium there are being produced every second a certain number of atoms of emanation due to distintegration of radium atoms, this number being a very small fraction (0.000,000,000,01) of the total amount of radium atoms present. If the radium is initially freed from emanation atoms by any suitable means, there will be formed in the first second this same definite number of emanation atoms, and of these a certain proportion (0.000,002) will change in the next second into the next product but not all will change. In the second second, more emanation atoms are formed and since there are now these together with the emanation atoms remaining from the first second, the number of emanation atoms changing in the second second is greater, since it is always the same fraction of all the emanation atoms present (0.000,002). In this way there is a piling up of the emanation atoms until a number of these changing per second equals the number produced per second from the radium. This limiting condition is called that of radioactive equilibrium. In a sealed radium preparation this condition of radioactive equilibrium between the radium and the emanation is half attained in 3.85 days. It is approximately attained in a month.

One curie of emanation is the equilibrium amount of radium emanation produced by one gram of radium element.

Being a gas, the radium emanation when present in any preparation has a great tendency to escape since the amount of emanation normally present in the air is an exceedingly small quantity. Some solids such as minerals and charcoals hold the emanation with considerable tenacity, but if the solid is finely divided and the air supply is sufficient, all the emanation will eventually be lost. Because of the ease with which emanation diffuses away from solutions, etc., it is always necessary to use great precautions to avoid such mechanical losses. So, for example, when a solution of radium emanation is being taken per os, it should be drunk through a tube from the original container. Again, the emanation is not very soluble in water. In a closed vessel half filled with water, at ordinary temperatures (20-25° C.), emanation would be so distributed that four-fifths would be in the air space and one-fifth dissolved in the water; that is, the concentration of the emanation in the water would be one-fourth the concentration of the emanation in the air above. For this reason it is necessary to use all of any emanation preparation at one dose. If, for example, a bottle of emanation water were half emptied, at a dose, in a short time four-fifths of the remaining emanation would pass into the air space and the second dose would contain only one-fifth as much emanation as did the first dose.

The radioactive decay of emanation is such that in 3.85 days half of any quantity of emanation has transmuted. In the next 3.85 days half of the remainder disintegrates, and so on, so that after a month practically all the emanation has decayed. Of course, if radium is present in the preparation the decay of the radium produces more emanation; but in any emanation preparation (such as most of the naturally active mineral waters) after one month practically all of the emanation has disintegrated and the radio-activity of the water is almost nil.

The necessity of giving exact data in regard to the quantities of radium salt and concentrations of radium emanation employed cannot be too strongly emphasized. Unless such data (based on actual measurement by reliable authority) is given when making the case reports they lose value, since there is no possibility of comparing results with those of others who may or may not have worked under the same conditions. It should also be clearly stated which method has been employed.

Depending upon the radioactive substances used, there are, in internal medicine, two main divisions recognized:

First—Administration of Radium Emanation (Part A and B).

Second—Administration of Radium Salts (Part C).

We will first take up the consideration of the various methods of administering radium emanation, the dosage employed, and a short description of its properties.

Radium emanation is the disintegration product resulting after radium atoms have undergone a transmution consisting in the emission of an alpha particle (ray). The alpha particles are positively charged helium atoms shot out with tremendous velocity (10,000 to 15,000 miles per second) from the parent atom. Radium emanation is a gas which is absolutely inert—chemically—forming no compounds. One curie of emanation gas has a volume of 0.6 cubic millimeters at 0° C. and a normal pressure of 760 mm. The weight of a curie of emanation is 0.006 milligrams. The heating effect, due to the alpha rays from one curie of emanation, amounts to 28.6 gram calories per hour.

In order to study the various methods, we herewith submit the following classification:

(Classification based on source of radio-activity.)

PART A.
Naturally occurring emanation.

- I. Inhalation.
  - Room.
  - Bath.
- II. Deglutition.
- III. Hypodermatic.
  - Intermuscular.
  - Intra-articular.
  - Intravenous
- IV. Enema.

PART B.
Artificially prepared emanation.

- I. Inhalation.
  - Room type.
    - with aid of oxygen or air.
  - Individual type.
    - with aid of oxygen or air and electricity.
  - Bath.
- II. Deglutition.
- III. Hypodermatic.
  - Intermuscular.
  - Intra-articular.
  - Intravenous.
- IV. Enema.

PART A.

The Administration of Naturally Occurring Emanation—Room Inhalation.

This method consists in placing patients in an air-tight room or compartment, into which, or through which, a stream of naturally radioactive water is flowing. The concentration is influenced by the amount of emanation taken up by the water in its course through some deposit of radioactive material in the depth of the earth, and by the rate at which the emanation is given off after it reaches the room or compartment. The only exact method by which the concentration of emanation in the room can be determined is by electroscopic analysis of the room air at the time of treatment. An approximate dose can be estimated by a knowledge of the average daily concentration of the water, the accumulated daily concentration in the room and the air capacity. The dosage should be expressed in terms of microcuries per liter of air.

Because of the uncertainty in the determination of the dosage, the difficulty of adjusting same to the individual case, and on account of the inadequate concentration of most waters* we believe this method, used alone, is therapeutically inadequate, and that cases so treated should not be considered in compiling statistics. This fact is now generally recognized, as most places using such methods augment the concentration by artificial means or by administering large quantities of natural radioactive water.

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*See Lazarus, Radium Biologie und Therapie, pages 195-201, for concentration of natural springs abroad. Data with regard to springs in the United States is very meager, and none of the springs so far examined have shown any notably high concentration of radium emanation.

Administration of Naturally Occurring Emanation—Natural Radioactive Bath.

There is considerable dispute among workers abroad as to the power of radium emanation to penetrate the skin. We believe that very little, if any, absorption actually takes place in this manner and that the therapeutic effect is derived entirely from the inhalation of the emanation as it comes from the water. Such being the case, opportunity should be given the patient to inhale all the emanation possible. This can be controlled to some extent by erecting a tent over the tub. Unless the natural radioactive water used is of a suitable temperature for a more or less prolonged immersion, considerable emanation will be lost in the process of heating. The higher the temperature the more rapidity will the emanation be given off, and this factor must be considered in working out a technic for the individual case.

The most exact method of determining the dose used is by an analysis of the air confined in the air space at time of treatment. An approximate dose can be determined by a knowledge of the emanation concentration of the water. The dosage should be expressed in terms of microcuries of emanation per liter of water in tub or per liter of confined air above the water line.

If sufficient concentration (in our opinion not less than 0.05 microcuries per liter) is present in the natural water, this method has some advantage, in that it combines the eliminating and quieting effect of a continuous warm bath with emanation. What has been said as to the therapeutic value of the inhalation of naturally occurring emanation when used alone also applies to the method just described.

Administration of Radium Emanation—Deglutition.

The only economical method of getting naturally occurring radium emanation into the stomach is in the form of naturally occurring radioactive water. By reason of the fact that it can be taken at frequent intervals, it is also the most effective single method of administering naturally occurring emanation. It is unfortunate that the decay is so rapid (half period being 3.8 days) that it is not practical to use naturally occurring radium emanation water any great distance from the source of supply. Hence, it can never be used for general distribution.

Except in the mildest type of cases there are few natural springs in the world of sufficient dosage to give a true therapeutic effect, and when results are obtained it is perhaps due to the continued effect which comes from frequently repeated doses. The original emanation concentration can be accurately determined by electroscopic methods, and if the rate of decay is properly calculated the dose of any single quantity can be determined at any period before consumption. The dosage should be expressed as microcuries or millicuries per liter.

Administration of Naturally Occurring Radium Emanation—Hypodermatically.

The intermuscular, intra-articular and intravenous injection of naturally occurring radium emanation, in the form of naturally occurring radium emanation water, is practically worthless from a therapeutic standpoint, as it is difficult to properly sterilize such a solution without a great loss of the emanation, and the dosage is too low.

Administration of Naturally Occurring Radium Emanation Water—Enema.

Because of the slight activity of most natural waters, this method of application is of no value; in fact, the last two mentioned methods are included in our classification simply because they have been advocated at times, and we desire to place them in their proper light.

PART B.

Administration of Artificially Produced Radium Emanation—Inhalation, Room-type.

This method consists in conveying by means of an oxygen or compressed air stream the emanation produced by a soluble radium salt in solution, into an air-tight room or compartment. Oxygen is not only used to convey the emanation, but to replace the oxygen which has been used up in breathing. It is more economical, however, to use air under pressure for this purpose, in which case some arrangement should be made for pumping the air out of the room, washing out the excess carbon dioxide and returning the air without loss of emanation.

The available dose for each patient can be estimated from the known amount of radium element in solution and the air capacity of the room. The exact dosage available can be determined by an examination of the room air for emanation at the time of treatment.

This method has the disadvantage of confining a number of persons in a closed room, the carbon dioxide content of which is considerably above the normal; the possibility of bacteriacidal contamination; the difficulty of individual dosage; and, due to the short length of time it takes for the blood to lose the emanation after the patient has passed out of the room, the treatment can only be effective if applied intensively.

In our experimental work with this method we used, on human beings, the emanation produced by 2 to 74 milligrams radium element, giving a room concentration of from 0.003 to 0.8 microcuries per liter of air (3 to 2100 mache units). On animals, we succeeded in securing a lethal dose by the use of a concentration of 2600 microcuries per liter of air (70,000,000 mache units).

The results obtained from low concentrations of emanation were practically nil, and it is best that not less than 25 milligrams of radium element should be employed in this work. It was demonstrated, by examination of the blood of patients for emanation, that in three hours practically all the body concentration had disappeared. Therefore, treatment by this method always should be augmented by additional emanation given in the form of emanation solutions per os.

Administration of Artificially Produced Emanation—Inhalation, Individual Type.

In this method the emanation, instead of being set free in a room, is carried to an individual inhalation apparatus placed over the patient's mouth and nose. The multiple type (for treating more than one patient at a time) has the advantage of permitting patients to sit or lounge in a well lighted and well ventilated room, and an arrangement can be had which allows better regulations of dosage for the individual case. The one or two patient type can be made portable and has the advantage of being able to use a less amount of radium element to secure the same individual concentration. It can be used also in hospital work for bed-fast patients, in which case the available concentration can be augmented by erecting a tent on the patient's bed.

Recently an effort has been made to use electricity for augmenting the concentration, the idea being to have the patient (nude) sit in a cabinet having the negative pole attached to some part of the body. We are of the opinion that this method offers little, since active deposit is only deposited on the skin, where it would have but slight effect. What has been said of the room type emanator regarding the estimation of dosage applies also to the individual type.

Administration of Artificially Produced Emanation—Inhalation, Radioactive Bath.

This form of administration of emanation consists in rendering the bath water radioactive by taking the emanation from a soluble radium salt in solution. It has the advantage over the natural radioactive water in that it can be made any concentration desired, depending, of course, on the amount of radium element. What we have described under the natural bath water as to estimation of dosage and technic also applies to this method.

Administration of Artificially Produced Emanation—Deglutition.

Many substances are capable of being rendered radioactive, but, on account of the rapid decay of the emanation, the only practical and economical method of administering is in the form of radioactive water. The method of production is simple and does not require an elaborate equipment. It consists in conveying the emanation, produced by a soluble radium salt in solution, into a container filled with distilled water. As the emanation is also soluble, the concentration in the distilled water is in direct proportion to the amount of radium contained in the soluble salt. Like the natural waters, artificially produced emanation water is not a permanently radioactive solution and, therefore, it is not a practical commercial possibility, excepting where it can be delivered fresh every day. It has a decided advantage over naturally occurring water, in that the concentration can be made any strength desired, and when used in sufficient dosage at frequent intervals is the most effective single method of administering emanation products.

We have used on human beings emanation solutions containing from 1 to 10,000 microcuries (2700 to 27,000,000 mache units), our maximum dose being by far the largest dose ever attempted. We consider a dose with an original concentration of less than 1 to 2 microcuries as insufficient, and an average daily dose of radium emanation should be 10 to 20 microcuries (27,000 to 54,000 mache units). A fair dose would be from 14 to 21 microcuries. In this connection it is well to mention the fact that the Radium Institute of London administers 250 to 500 microcuries of emanation as the daily dose.

Recently numerous machines have been put on the market for the production of radioactive water. The principle of these machines is the enclosing of an insoluble radium salt in a porcelain or other previous capsule, the idea being to have the emanation escape into the water in which it is immersed. Considering the fact that the amount of emanation actually able to pass through would only be from 2 to 10 per cent of the amount produced by the radium element contained, we do not believe, from an economic standpoint, that this method is practical, since very large amounts of radium element must be used in order to secure sufficient dosage, thus making this form of treatment almost prohibitive from the standpoint of cost.

Administration of Artificially Produced Radium Emanation—Hypodermatically.

The preparation of a solution for intra-articular, intermuscular or intravenous injection in this way is possible because distilled water or normal physiological salt solution can be used in the preparation of same. To secure sufficient dosage, the emanation from a large amount of radium is necessary. For practical purposes, therefore, this form of using emanation is not generally available.

Administration of Artificially Produced Radium Emanation—Enema.

A solution for use as an enema can be prepared as described in the preparation of emanation solutions for drinking purposes. The water cannot be re-distilled or sterilized without loss of emanation. As the emanation would not be taken up so rapidly, it would be necessary, then, to have a large concentration in order to secure a physiological effect.

PART C.

Internal Administration of Radium Salts.

(a) Deglutition.

Drinking solution.

Tablets, Pills, Capsules, etc.

(b) Hypodermatic.

Intermuscular.

Intra-articular.

Intravenous.

(c) Bathing solution.

(d) Enema.

General Considerations.

Perhaps the first attempt toward the internal administration of radium element was made by M. Jaboin and M. Beaudoin, who, according to the formula of Rutherford, incorporated 1/10 micrograms of radium bromide in 10 liters of natural radio-active water for the purpose of making a permanently radioactive solution. In 1906 Wickham and Degrais first injected soluble radium salts and after injecting some thirty patients (doses from 1 to 10 micrograms per cc.) conclude that the body can bear perfectly certain doses of radium. They further state that the urine was radioactive for three or four days following the injection, and that this radioactivity decreased steadily during the next four days. M. Dominici and M. Faure Beaulieu have shown that the injection of an insoluble radium salt is arrested in living tissue and may remain at least sixty-seven days. M. Chevrier, M. Renon and M. L. Marie also studied the effect of such injections. Wickham and Degrais, in their report to the Congress on Physico Therapy, conclude as follows:

"Subcutaneous, intravenous, intrapulmonary, intraperitoneal, intrapleural and subarchnoid injections of radium sulphate are harmless; even in infants there is, during the first two hours after injection, only a slight and transient state of cardiac depression or stimulation."

In co-operation with Doctor Frederick Proescher, we have carried on extensive experiments with the use of radium element internally, using from 1 to 10 micrograms in 60 cc. of water by mouth and from 10 micrograms to one milligram in 3 cc. of physiological salt solution, given intravenously. As far as we are able to learn, this has been the most extensive work carried out in internal administration of radium salt. Even with the use of 1 milligram doses we have, up to this time, never seen the slightest ill effect, the only contraindication noted being an extremely low blood pressure.

The following table shows the distribution of radium salts following an intravenous injection of one milligram radium element in the form of a soluble salt. It is to be noted that by far the largest percentage is recovered from the bone and bone marrow, where it is deposited as an insoluble salt. It is to be noted further that the carcinomatous tissue present in this particular case does not show an excessive percentage of radium:

RADIUM RESEARCH LABORATORY—REPORT NO. 268.

One Milligram Radium Element Injected September 1, 1913.

Diagnosis—Cancer of Uterus.

Autopsy Held December 17, 1913.

No.	Part.	Wet Weight.	Dry Weight.	Radium in Sample.		Radium per gram dry weight.
1.	Heart tissue..	11.7 gm	2.26 gm.	.000118	micrograms.	0.00005
2.	Aorta tissue abdominal	13.4	2.79	.00219	"	0.00080
3.	Bone marrow (sternum)	20.5	7.01	.04414	"	0.00630
4.	Liver	11.9	2.48	.01530	"	0.00610
5.	Suprarenal capsule	5.3	0.91	.000118	"	0.00013
6.	Carcinomatus tissue mass of the perametrium	12.4	2.17	.000275	"	0.00012
7.	Para thyroid gland	0.12	0.035	Trace?		....
8.	Bone marrow, lumbar region.	9.18	3.73	.01780	"	0.00480
9.	Intestines	17.7	5.10	.000700	"	0.00014
10.	Thyroid gland.	13.3	2.74	.000700	"	0.00026
11.	Kidney	15.0	3.41	.000090	"	0.00003
12.	Stomach	15.5	3.30	Trace?		....
13.	Lung	4.77	0.82	.00163	"	0.00200
14.	Pankreas	7.12	1.38	.00059	"	0.00043
15.	Spleen	11.83	2.90	.00196	"	0.00067
16.	Retroperitoneal gland	26.6	11.80	.00141	"	0.00013

Internal Administration of Radium Salts—Deglutition, Drinking Solution.

By dissolving soluble radium salts in re-distilled water and permitting it to stand thirty days, or until the contained salt has produced its equilibrium amount of emanation, a permanent radioactive solution is prepared. To prevent undue loss of the accumulated emanation, the solution should not be greater than an amount which can be administered at one dose, and should contain enough radium element per dose to give a daily concentration of not less than 4 microcuries or 11,000 mache units. As will be seen later, this is the most economical method of administering radium salts by mouth. It not only has the advantage over emanation solutions by being permanent and, therefore, practical, but it represents definite dosage, and will, by reason of the retention for a greater or less period of the salts in the stomach and intestinal tract, give a more prolonged therapeutic effect.

The dosage can be accurately determined by the electroscope and should be expressed in micrograms of radium element per dose.

Internal Administration of Radium Salts—Deglutition, Tablets, Pills, Capsules, Etc.

Many substances, such as charcoal, can be rendered radioactive temporarily by the use of radium emanation; permanently so by incorporating with the substance radium element. The period of the activity produced by the emanation is so short that tablets, pills, capsules, etc., made by this process are absolutely worthless. It would seem, however, that radium element administered in this way would present many advantages. On the contrary, we condemn their use because the emanation which is produced by the contained radium element would necessarily have to be large in order to secure sufficient dosage. When administering radium salts in this manner the dosage should be expressed in micrograms of radium element per dose, and it should be clearly stated in what form administered.

Internal Administration of Radium Salts—Hypodermatically.

The only practical method of preparing solutions for intermuscular, intra-articular or intravenous injections is by the use of a soluble radium salt, for by this method permanent and absolutely sterile preparations can be obtained, and, furthermore, exactness in dosage is assured. As before stated, we experimented with dosages ranging from 5 micrograms to 1 milligram put up in ampulles containing 2 cc. of physiological salt solution. At the present time we consider a single dose of from 50 to 100 micrograms as therapeutically correct and absolutely safe. This amount can be repeated every 10 days, until the patient has received 300 micrograms. A larger accumulative dose we consider not necessary for ordinary work.

Our experimental work with the intermuscular and intra-articular injection was not extensive, since we felt that the maximum effect of radium administered internally was obtained when it was injected intravenously, the blood stream at once carrying the radium to all parts of the system.

Internal Administration of Radium Salts—Bathing Solution.

Bathing solutions must, of course, be permanent, and they can only be made so by the addition of soluble radium salts. Individual bath stock solutions should contain enough radium element which, when mixed with the bath water, will give a concentration of from 1 to 10 microcuries. Strictly speaking, this form of adminisration is by inhalation, and is only mentioned here because soluble radium salts should be used in the preparation of the stock solutions. As a matter of fact, this form of radio-active bath is the only one in which an established dose can be satisfactorily administered. What has already been said regarding the technic of a radio-active bath also applies to this method. The dose should be stated as so much radium element per liter of bath water. The temperature of the water and duration of bath should be mentioned. Mention should also be made as to the open or closed (tent erected over tub) method.

Internal Administration of Radium Salts—Enema.

We are not prepared to give an opinion as to the comparative therapeutic value of this method, as we considered that the accumulated emanation in the stock solutions would be entirely lost during the process of preparation for administration. The stock solution should be put up in a container that will permit heating of the fluid to at least 100° F. while still under seal. The container should then be connected directly to the rectal tube. Such a method may prove of value provided that the solution contains not less than four micrograms of radium element per dose.

In conclusion, we again desire to call the attention of physicians to the necessity of stating the correct dosage and to warn them that they must be absolutely sure that they are using preparations the emanation concentration or radium element content of which cannot be questioned. All pharmaceutical radium preparations should be viewed with distrust if the radium content of the preparation is not specifically stated and guaranteed.

ANNUAL BANQUET.

The annual banquet has ever been the crowning social feature of the clinical week; and the 1914 meeting was no exception. The University Club rooms were beautifully decorated and special music was provided. An excellent menu had been prepared and the guests all vied as to who could have the best time.

A most instructive address was given by Dr. Cameron on his researches in the use of radium, and although he was very modest in his statements, all felt encouraged as to the future of this rather new therapeutic measure. We hope that the visiting Alumni will always plan to be present at the annual banquet and insist that their wives accompany them to be present at this function.

Chairman John B. Potts and his committee are to be congratulated on the success of both the scientific and social programs.

CLINIC.

Swedish Mission Hospital, Thursday Afternoon, October 15, 1914.

By W. H. Cameron, M. D.

Male. Age 31, married, brakeman, American.

Family History—Father dead, 58, paresis. Mother dead, age unknown, result of childbirth. Brothers, four living and well, none dead. Sisters, none. Wife, living and well. Sons, none. Daughters, none.

Past History—First attack of gonnorhea, 13 years ago. Second attack 7 years ago. Choroid 8 years ago.

Personal Habits—Not addicted to alcohol; smokes considerable.

Present Trouble—Six years ago commenced with gonorrheal anthritis. Shortly after, second attack of gonorrhea in both feet. Feet at that time greatly swollen and very painful. Was treated at the Swedish Mission Hospital, Omaha. Remained in hospital three weeks. Shortly after leaving hospital had a stabbing pain in region of left sciatic at hip, which was brought on by the slightest movement. Returned to hospital for treatment and was dismissed after ten days.

On September 21, 1914, returned to hospital, complaining of pain and swelling in both wrists, right knee, some joints of fingers, both ankles, left shoulder. Could hardly walk when he entered hospital.

Injection introvenously of 50 micrograms radium emanation in 2 cc physiological salt solution. Glass Lauzer's syringe used.

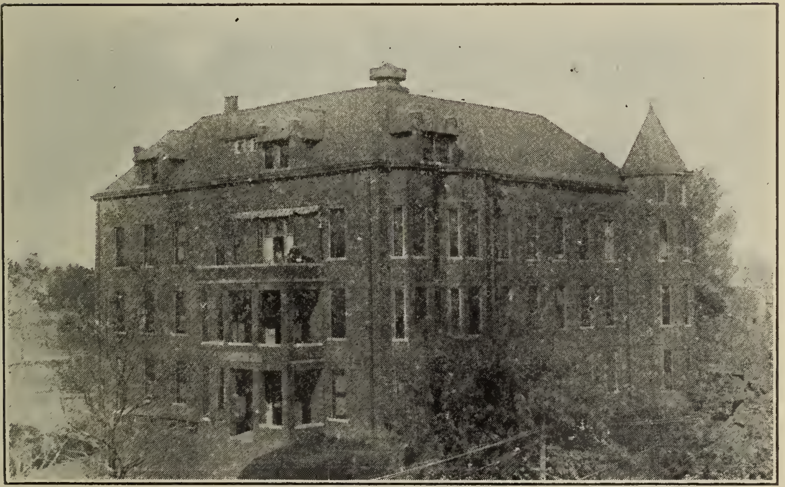
After injection, pain did not disappear. Felt slightly better, however, for five or six days. Did not notice any different in joints.

REDS	WHITES BEFORE	WHITES AFTER
	No. per cmm......12,800	No. per cmm. 8,300
Before, 4,480,000 per cmm.	Polymorphonuclear.67%	58%
After, 8,800,000 per cmm.	Lymphocytes	
	Large and Small..31%	38%
	Transitionals....... 2%	4%

Blood Pressure—Before, 180; after, 140.

No rise in temperature after injection.

SWEDISH MISSION HOSPITAL
Clinic, Thursday, October 15, 1914



IMMANUEL HOSPITAL
Clinic. Friday, October 16, 1914

FRIDAY, OCTOBER 16, 1914

CLINIC.

Immanuel Hospital, Friday, October 16.
By F. S. Owen, M. D.

CASE I.

History—October 16th, 1914, schoolboy, aged 11 years.

Family History—Father and mother alive and well. Four brothers and two sisters alive and well.

Past History—Normal birth. At three months pus began to flow from the right ear. Has appeared at intervals ever since until two years ago. Polyps were removed from the ear at the age of four. This was repeated several times until he was six years old. At that time the drum was removed. At age of nine the flow of pus stopped. Had measules and whooping cough at the age of three years, scarlet fever and smallpox at age of nine.

Present Illness—Began nine weeks ago with pain around the ear, suppuration, nausea and vomiting. During the first four or five weeks vomited several times daily. Recently had not vomited any for eight days until last night after eating dinner.

Has had pains in the head in the region of the ear during the first ten days. Since then the pain has been above the eyes and neuralgic in character, keeping him awake at times. Troubled with constipation recently.

The history just read omits the most important symptom, i. e., the temperature. The history sheet shows that in the past few days the temperature has been characterized with marked fluctuations and remissions.

With striking regularity, once daily, usually in the evening, he has complained of being chilly or has had a distinct rigor. This has been followed by a sudden rise of temperature, sometimes reaching 104 to 106, which has remained but a few hours, when it has as suddenly dropped to normal, where it has remained until the next chill.

In this case, ,the chronic otitis media, persistent otalgia extending recently into cephalalgia, high temperature with marked fluctuations, vomiting and rigors should be regarded as pointing to thrombosis of the lateral sinus.

Operation—The procedure consisted of three stages; first, the radical mastoid operation, after a modification of Stacke's; second, the exposure and evacuation of the lateral sinus. This was found to be completely occluded by a firm clot for a distance of one and a half inches in the direction of the torcular Herophili. A return flow of blood could not be obtained from the direction of the bulb. Third—The internal jugular was ligated in two places and the intervening section incised by Dr. B. B. Davis.

Subsequent History—Following the operation for a few days a moderate elevation of temperature was maintained, when it subsided and the patient's condition became greatly improved and every indication pointed to a speedy recovery. But in the third week of his convalescence he commenced to complain of a severe pain just above the eye on the right side. This was soon followed by a lowering of the pulse rate, sometimes reaching as low as 58. An examination of the eye showed the right dics to be edematous and retina about it hazy.

These symptoms pointed unmistakably to brain abscess. An operation therefore for its relief was performed without much delay.

The skull was trephined one and a quarter inches in a line perpendicular to the center of the osseous, external auitory canal. A knife thrust into the brain tissue about three-fourths of an inch was followed by the flow several drachms of stinking pus.

At this writing, three weeks after the operation for the brain abscess, his condition warrants an exceedingly hopeful outlook for an ultimate recovery.

CLINIC.

Immanuel Hospital, Friday October 16, 1914.

By Dr. B. B. Davis, M. D.

CASE I.

History—October 15, 1914. Male, age 33. Farmer. Married.

Family History—Father alive and well, aged 60 years. Mother dead, childbirth. Two brothers and one sister alive and well. One child alive and well.

Past History—Usual childhood diseases.

Present Illness—Began about two years ago, as pain in the epigastric region. This pain was felt usually in the morning before breakfast and was always relieved by eating. Sometimes there was pain at noon or night which was also always relieved by eating. The pain increased for about a year and since then has been about the same. Appetite good, bowels regular. Seldom nauseated.

Diagnosis—Obstruction of the duodenum due to benign ulcer with dilatation of the stomach.

Operation—Incision was made in the median line above umbilicus. Stomach found quite badly dilated and upper portion of duodenum seemed dilated. Posterior gastro-enterostomy was done in the usual manner, making three rows of Pagensteker stitches.

Discussion—In connection with this case I cannot forebear a few remarks on the value of the X-ray in the diagnosis of gastric lesions. It is now possible to distinguish between cancer and ulcer and between gastric and duodenal ulcer by means of the X-ray. No examination can be considered complete until we add the X-ray findings to the other modes of examination.

A clinical differentiation between ulcer of the stomach and duodenum is the length of time after ingestion of food before pain begins. If gastric, the pain begins almost immediately, if duodenal, from one to two hours elapses before pain occurs. The ingestion of food temporarily relieves the pain if the ulcer is duodenal. This is not true when the ulcer is gastric.

CASE II.

History—April 10th, 1914. Male, aged 39. Married. Occupation, plumber.

Family History—Father died at 69 of heart trouble. Mother alive and well. Three brothers and two sisters alive and well. Wife and five children alive and well. No history of tuberculosis or cancer in the family.

Past History—Usual childhood diseases and penumonia at age of 25.

Present Illness—Since January 10th, he has not been able to swallow solids. At times he cannot take liquids. Has had not pain. Has never vomited. Has decreased in weight from 225 pounds to 160 pounds in three months. He says that the stricture of the oesophogus is about eight inches from front teeth. He used alcohol for years. For last twenty years has taken whiskey early in the morning and has not eaten any breakfast. Bowels are regular. Sleeps well.

Diagnosis—Stricture of the oesophagus, beginning six inches from the teeth and extending two and one-half inches farther.

Operation—May 23, 1914. Incision was made above the umbilicus a little to the left of the median line. Anterior wall of the stomach brought forward and an anastomosis was done by E. Senn's method. Nothing was done with the stricture of the oesophagus at this time.

After Treatment—For thirty days the tube was retained in the opening. A silk thread was passed through the oesophagus and a larger thread was drawn through by means of this thread. The larger thread had several knots tied in it and with these knots a sawing motion was obtained through the stricture. This treatment lasted about thirty days. During this time, the patient could eat gruel and milk in the ordinary way. The treatment was stopped about July 10th, after the oesophagus was dilated enough for large bougie to pass. The external opening of the fistula was closed about three weeks ago.

Present Diagnosis—Adhesions of the anterior stomach wall to the abdominal wall as a result of a gastrostomy for stricture of the oesophagus.

Operation—October 10th, 1914. Incision was made along the scar, and in going through the abdominal wall the stomach was opened and after being thoroughly loosened from the abdominal wall was sutured in the ordinary way with Pagenstecker stitches.

Discussion—When the stomach is attached to the anterior abdominal wall it not only interferes with peristalsis and retards the free emptying of the stomach, but the pull is usually painful.

After operations such as have been done today, I usually give the patient water on the second day. If that is not followed by deleterious results, the patient is given clear broths. The third day and by the fourth he is permitted thin gruels and by the end of a week a rather liberal diet. I am satisfied that patients must be to bed early after gastric operations.

CONFERENCE.

DIAGNOSIS AND MEDICAL TREATMENT OF STONE IN THE KIDNEY AND URETER.

By W. O. Bridges, M. D.

Deep seated pain in the loin extending in the direction of the ureter to the bladder, accompanied by frequency of urination and blood in the urine are strongly diagnostic of nephrolithiasis. If the stone is fixed in the kidney, the pain may be localized blood in small or large quantities is found in the urine and frequency of urination is not necessarily present. If in the ureter and fixed, veryy severe radiating pain extending to the bladder, constant desire to urinate and later signs of hyydronephrosis are present. Occasionally in fixed stone in the kidney pain is not severe, may be intermittent, but blood is usually found in the urine in macroscopical or microscopical amounts.

History of previous attacks of similar type, the known passage of stone and the discovery of crystalin substances in the urine will aid in the diagnosis. In the rapid passage of stone through the ureter the symptoms may be of short duration, if present at all. Stone in kidneys which may be prolapsed may give rise to differently localized pain, but the other diagnostic symptoms are present.

Hepatic colic may be excluded by its different localization in the epigastrium or gall bladder area and radiating to the right shoulder instead of downward toward the bladder and by the presence of frequent urination and blood in the urine.

Intestinal colic is ruled out by the instablity of the pain, its localization in the abdomen and its variable radiation. Right sided ureter stone may be confounded with appendicitis but the latter is unaccompanied by the urinary symptoms, has more fever, greater muscular rigidity of the right abdomen and usually leucocytosis. Ovarian pain accompanied so frequently by back ache may simulate stone but the urinary findings of the latter, excepting frequency, are not present. Pelvic examination in all cases in women should be made.

Tuberculosis or malignancy of the kidney accompanied by the pasage of small blood clots through the ureter may often be difficult to differentiate in the early stage, but if the constitutional symptoms and the signs of enlarged kidney are held in mind with repeated examinations of the urine mistakes should be infrequent.

There are infrequent cases of fixed stone in the kidney with smooth surface, unattended by pain but causing bloody urine, often frequency of urination, which may not permit of accurate diagnosis excepting by means of X-Ray examination. This should be resorted to in all cases of doubt. The use of the ureteral catheter may also be of value in fixed ureteral stone.

The medical treatment of kidney stone consists in the relief of the colic attack, if such be present, and of conditions which gave rise to stone. The usual severity calls for prompt action, first in the hypodermic use of morphia ¼ grain, and atropia 1-100 grain and the inhalation of chloroform sufficient to mitigate the pain, the hypo may need to be repeated, and second in the application of hot packs for relaxation. Liberal quantities of hot water should be administered and vomiting, if not already present, encouraged. The bowels may be evacuated by hot enemata which favors relaxation also.

The treatment of the condition giving rise to kidney stone necessitates careful study of occupation, habits of life, constitutional tendencies, diet and the urine of the sufferer. Chemical and microscopical examinations of the urine will determine the character of the sediments which result from the abnormal condition and furnish a key for intelligent treatment.

If a stone is pased in a colic attack it should be submitted to analysis and the findings in the urine correlated. The result of such an examination will reveal whether we have to deal with a tendency to uric acid, oxalate of lime or phosphatic deposit in the kidney. In accord with this knowledge we should at once institute measures, dietetic and medicinal, toward the condition. This involves a carefully selected dietary for the respective types, the details of which may be found in any of the late works on dietetics, and which time forbids going into here. The same may be said of appropriate remedies and mineral water which contain such.

Patients subject to repeated attacks will be frequently benefited more by a sojourn at some appropriate spa where discipline as to diet, exercise, baths, massage, etc., will be more thorough.

Fixed stone in the kidney or ureter, correctly diagnosed should require the skill of the competent surgeon before the development of the serious complications so commonly met with.

Later theories concerning the relation of bacterial infection of the urinary tract and a resultant formation of stone, should lead in all instances to bacteriological examinations of the urine which may suggest antiseptic reemdies eliminated through the urine, or the use of specfic vaccines in addition to other measures.

The writer adopted the latter treatment in a stubborn case recently in which the history had extended over a number of years and staphylococci in large numbers found in the urine without apparent result.

SURGERY OF THE KIDNEY AND URETERAL STONE.

By B. B. Davis, M. D.

In a twelve minute paper it will be impossible to enter into any extended discussion of any part of my subject. In order to cover the ground it will be necessary to include movable kidney, injuries of the kidney, pyelonephritis, suppuration, hydro and pyonephrosis, tuberculosis, tumors, and renal and ureteral calculi. It is, therefore, possible to touch only a few of the high places.

Movable Kidney.

There are three degrees of movability:

First—Simply moving up and down behind the peritoneum.

Second—Not only moving up and down but pushing the peritoneum forward as well.

Third—The true floating kidney when the organ pushes its way into the abdominal cavity and has for its pedicle the renal vessels, the ureter and the peritoneum and fat. Movable kidney is very rare in the male sex, and very common in the female. According to my observations, based on examinations of hundreds of women coming for all sorts of intra-abdominal ills, about one woman in five has a right movable kidney. Of those having a movable kidney not more than one in twenty has symptoms attributable to the kidney.

When patients have symptoms due to a movable kidney they usually are thin in flesh with flabby ymuscles, have more or less dull pain in the loin and running down into the iliac region of the side affected, usually the right. Many of these patients are subject to severe gastric crisis with vomiting and pain, known as Dietl's Crisis.

The diagnosis is easy. In the dorsal position with the shoulders raised and the thighs flexed the surgeon presses with one hand just below the last rib behind and with the other hand over the abdomen at the outer border of the rectus muscle. The patient is requested to breathe deeply and just at the end of a deep inspiration the hand over the abdomen presses deeply and a firm but gentle effort is made to approximate the two hands. If the kidney is movable it is felt between the two hands and can be made to slip between the fingers up into place where it cannot be felt unless decidedly enlarged.

If such a patient can be made to lay on fat, the kidney may become more and more fixed in its normal position. Steady development of the abdominal muscles, thus increasing the intra-abdominal tension will often overcome the trouble. I have never had much confidence in abdominal supports or pads of any kind for this condition. If the compression is strong enough to hold the kidney in place it is too uncomfortable to be borne. If it is put on loosely enough for the patient to endure the pressure it is not firm enough to hold the kidney up.

If rest in bed, efforts to increase the weight and to develop the muscles do not suffice to give relief and if the patient continues to suffer and especially if the urine occasionally contains albumen, an operation which has for its object the anchoring of the kidney is indicated, though all of us, I think, with increasing experience resort to this operation less and less frequently.

None of the operations thus far proposed are entirely satisfactory. Permanent relief is not always attainable. The scars are often painful and too often the improvement is not sufficient to warrant the operation.

The older operations are not much done at present. Those procedures that depend on some fascia or muscle to held the kidney up are the ones most in favor at the present time. The method I first bgan using more than ten years ago has proven so satisfactory that it has been my regular procedure. Briefly it consists of stripping off two quadrilateral flaps of kidney capsule, passing one of these flaps through a slit in the quadratus lumborum muscle and stitching these flaps together over the muscle. It is easy to do, it is fairly permanent and it usually relieves the symptoms.

Kidney Injuries.

These are usually due to blows delivered on the abdomen or over the muscles behind the kidney or to the body being crushed between two objects. The injury may be so slight as to be negligible or it may completely crush the kidney. It is a relatively frequent accident and is usually characterized by intense shock at the beginning and later by bloody urine in all cases of severe injury unless the uterer on the injured side is blocked or torn across.

A large hematoma often fills the kidney pouch and bulges forward, forming a tumor in the lateral position of the abdomen. In such a case the patient is often very anaemic and has all the symptoms of a severe loss of blood. Sometimes the peritoneum is torn in front of the kidney and free blood is present in the abdominal cavity, giving rise to peritoneal irritation to such an extent as to excite suspicion of an injury to one of the intra-peritoneal viscera.

In all cases that seem severe an incision over the kidney behind or in front, depending on the positiveness of the diagnosis, should be made. The kidney is then examined and dealt with in accordance with the lesion. If completely pulpified, or if the renal vessels are torn, or if any condition is discovered prohibitive of future function, nephrectomy is imperative.

On the other hand if the injury is less severe the operation need not be so heroic. Mere lacerations are dealt with by the use of a firm gauze tamponade which serves the double purpose of controlling the hemorrhage and acting as a drain. I have had some cases where one pole was pulpified or so badly lacerated that amputation of the pole has been done and the remainder of the kidney preserved. These cases have all of them recovered nicely and even if the kidney is not perfect or complete it is much better than to have removed it. The tendency in all this class of injuries is to treat them more and more conservatively.

Pyelo-nephritis.

Inflammation of the pelvis and the substance of the kidney as well is usually characterized by the presence of pyuria and attacks of renal pain and renal colic.

Urinary antiseptics, rest, hot fomentations, a low diet, and in the more obstinate cases irrigation of the kidney pelvis by means of a ureteral catheter will usually result finally in cure.

Severer or obstinate cases occasionally demand pyelotomy and the establishment of good drainage.

Suppuration.

Pus may occur in the kidney through infections via the circulation from below or from contiguous infected organs. It may result in a general disintegration of the whole organ which will require nephrectomy, or there may be multiple small abscesses. If each of these abscesses can be drained and there is still some normal kidney area, conservative drainage is the operation of choice. In general when a kidney becomes infected with a pyogenic micro-organism the sooner operation is done the less likely will nephrectomy be necessary.

Hydro-nephrosis.

Due to temporary obstruction to the urine passing from the pelvis of the kidney. If the obstruction is at any point from the base of the bladder to the meatus urinarius the hydro-nephrosis will be bilateral. If the obstruction arises from a kink or valve in the ureter, pressure on the ureter by a tumor, blocking of the ureter or pelvis by stone, blood clot, broken down debris or a tumor in the renal pelvis, the hydro-nephrosis will be unilateral.

When hydro-nephrosis is recent the kidney tissue is pressed but not destroyed. If persistent or often repeated the renal tissue becomes flattened, the glomeruli and ducts permanently collapsed, the cells atrophied and it only serves the purpose of a cyst wall.

The treatment consists in ascertaining the cause of the obstruction as soon as possible and removing it by an appropriate operative procedure. If the trouble is unilateral and is not removable nephrectomy is imperative. Here, as in so many other cases, the sooner operation is done the more conservatively as a rule can relief be obtained.

Pyo-nephrosis.

This is merely a hydro-nephrosis containing pus instead of water. The cases are practically the same and the treatment is the same except that promptness in dealing with the condition is even more imperative.

Tuberculosis.

This is one of the most serious of the surgical affections of the kidney. In young children it is usually of the miliary type and almost always affects both kidneys. In young adults the caseous type predominates and it is more likely to be unilateral. It is safe to say that the disease considered as a whole is bilateral in 50% of the cases.

The serious complications which gravely affect the prognosis are: First, involvement of opposite kidney. Second, tuberculosis of the seminal vesicles, vas, epididymis, bladder and other organs.

At first pain is slight, but later it becomes very severe with attacks of colic whenever debris blocks the ureter.

Tubercle bacilli present in the urine is a mixed infection and pus difficult to find. In most cases there is a mixed infection and pus cocci and bacillis coli. communis found in considerable numbers.

The cystoscope will show the opening of the ureter on the affected side swollen, pulpy and often lacerated. If methylene blue be given hypodermically it is not secreted at all or at best very slowly by the affected kidney.

The enlarged ureter may often be felt by a finger in the rectum or vagina.

Albuminuria is almost always present. Very severe pain at neck of bladder is present during and after micturition.

The temperature range is that of tuberculosis elsewhere. Kills on an average in five years from the onset.

The general treatment of tuberculosis is equally applicable here with the disease in other parts of the body.

When unilateral nephrectomy combined with the removal of the ureter and the seminal vesicle or vesicles, the vas and the testicle if these are diseased has cured in many cases. When the disase is bilateral only drainage is applicable. If complicated by pulmonary tuberculosis or other disease focus not removable by operation nephrectomy is not advisable except in special cases when it may be done to get rid of a distressing symptom or to put the patient in a better condition to resist and be cured of the other disease focus.

If the disease is limited, as occasionally happens, to a part of the kidney, the diseased portion may sometimes be removed and the remainder preserved.

Renal Tumors.

Any extended discussion of this topic is prohibited by lack of time. There are occasionally benign tumors such as papillomata of the renal pelvis. Adenoma is sometimes found, also lipoma, angeioma and myoma. In papillomata hematuria is usually present, also often there will be attacks of renal colic. Opening of the pelvis and removal of the papilloma may be done. The other benign growths are often unsuspected. Occasionally they may produce symptoms that lead to operation. Such operations are best done as conservatively as the nature of the case will permit. I have removed half the kidney for benign tumor, preserving the remainder with good results.

By far the most common tumors of the kidney are carcimona and sarcoma. Sarcoma usually affects children under five years of age and is usually fatal. The few cases of sucessful nephrectomy for sarcoma with survival of the patient beyond the three year limit are looked upon chiefly as surgical curiosities.

The disease is usually painless throughout and the tumors grow to an enormous size, filling the abdomen.

In carcinoma we expect to find blood in the urine almost constantly with enlargement of the nodulation of the kidney. If operated early the operative mortality is not very great and these cases are usually made more comfortable and live longer to warrant the operation. But malignant disease of the kidney, whether it be sarcoma or carcinoma is so hopeless so far as the final outcome is concerned that it makes an exceedingly gloomy chapter. Few surgeons, no matter how great their experience, can show a single case that is well five years after nephrectomy for sarcoma or carcinoma.

Renal and Ureteral Stone.

In no branch of kidney surgery has so much improvement occurred during the past decade as in the diagnosis and treatment of stone. In sharp contradistinction to malignant tumors and tuberculosis, stone is more painful but more curable. In fact the time has now come that a person has no more right to perish of renal or ureteral stone than of appendicitis.

If one were to be asked why so much greater progress has been made in relieving patients of stone than of other lesions the answer could be summed up in one word—the "X-Ray."

The cause of stone is chiefly infections, clumping bacteria forming a most favorable nucleus.

There is no need to go largely into symptoms. Aching pain in the loin and along the ureter; attacks of terrific colic, the paroxysms passing from the loin down along the course of the ureter to the bladder, testicle and to the end of penis and down the thigh, hematuria and pyuria are the few cardinal symptoms that should lead one to have a radiogram made, and the beauty of it is, the X-Ray picture is so positive that we may operate with assurance that the stone will be found in the exact spot and of the exact shape the radiogram shows it. In fact if the X-Ray shows a stone and you operate and do not find it, look again.

But be sure the X-Ray is taken immediately before the operation is done, or at least that no attack of colic supervenes between the date of taking the picture and the operation. Twice I have operated for stone in the pelvis of the kidney, because I had a picture before me showing the stone in that location. In both cases the stone was finally located in the ureter, once about four inches below the renal pelvis and once within three inches of the bladder. Although only two and five days had elapsed respectively between the date of the picture and of the operation, an attack of colic had occurred in each case in that interval and the paroxysm had moved the stone along its way.

Now I want my picture taken the day before the operation, and if colic occurs after the picture is taken the operation will be postponed until a new picture can be made.

The technique of operating for stone in the kidney is usually carried out through a posterior incision. The fact that the X-Ray localizes the stone so exactly makes it unnecessary to puncture and cut and lacerate the viscus as was once necessary. It is usually possible to go directly down upon the stone and when the stone is found as shown in the picture no further search is needful for there are no more stones or the picture would show them.

When possible to remove the stone through an incision in an avascular area in the pelvis this is much better than to wound the kidney. .Simple drainage carried down to the wound in the pelvis will suffice and the wound will heal promptly.

In operating for stone in the ureter the incision will have to be made in such a place as will render the stone accessible. As far as possible the operation should be extra-peritoneal. Make the incision in the ureter over the stone and longitudinal, slip out the stone. Usually it is better to make no effort to suture the ureter. The cases I have sutured did no better than those not sutured. A small tube should drain from the incision in the ureter.

ROENTGEN DIAGNOSIS OF RENAL AND URETERAL CALCULI.

By C. H. Ballard, M. D.

Today the X-Ray holds an important place in the diagnosis of urinary calculi; so important in fact that every case suspected of this malady should have the benefit of a Roentgen examination. It is of interest to know that practically the first work accomplished along this line was that of C. L. Leonard of Philadelphia, who sacrificed himself for the advance of Roentgenology, dying in 1913 from the effects of extensive X-Ray burns.

Technique is of considerable importance and if properly carried out one can secure a shadow if a stone be present in approximately 96% of cases. Therefore the error is less than by any other method of examination. I do not mean by this that clinical methods have no value, but on the contrary are often a great aid and should be combined with the information obtained from radiographs. The whole urinary tract should be examined as cases are on record where a stone has been found on the opposite side from the one suspected and in which the pain occurred. Again there is the possiblity of calculi being present on both sides or one in the kidney or ureter and one in the bladder.

It is usually a small stone that gives rise to hemorrhage and colic during its effort to escape through the ureter. A calculus large enough to disorganize the greater part of a kidney may cause no pain and the only symptom may be an albumineria. Without a Roentgenogram this would lead one to a diagnosis of chronic interstitial nephritis. In 90% of cases it is possible to see the contour of the kidney and thus to gain definite knowledge of its condition.

Plates are relied upon almost entirely for an examination of the urinary tract, although calculi may sometimes be plainly seen fluroscopically. Recently I had such a case where a right kidney stone was discovered while screening the caecum. A diagnosis should never be made from one radiogram but should always be confirmed by a second. The patient should be carefully prepared by giving a vegetable cathartic and enema the evening before and allowed no breakfast the following morning when the examination should be made.

One should have a correct idea of where to look on the skiagraph for a calculus. If a shadow lies between the transverse processes of the first and second lumbar vertebrae near a line drawn through their tips it would indicate its presence in the pelvis of the kidney. The ureters continue downward from this point across the tips of the transverse processes and in front of the sacro-iliac joints to the bladder. The pelvis of the right kidney lies somewhat lower than the left. A line drawn vertically downward to the center of the highest point of the crest of the ilium forms a guide to the outer border of the kidney and a shadow lying external to this would not be found in this organ.

The radiogram shows how distinctly the eleventh and twelfth ribs, the lumbar vertebrae with their transverse processes, the outer border of the psoas muscle and the crest of the ilium. If the kidney shadow is also visible the plate is ideal and will show any stone except a small one of pure uric acid which is very rare.

Calculi when found during their passage to the bladder are generally small but if they remain impacted in the ureter over a long period they increase in size and become oval or elongated in shape with their long axis vertical. This is due to the manner in which fresh salts are deposited on them.

One must be alert for other conditions simulating kidney stone in order to avoid error if possible. Of these conditions calcareous mesenteric glands, papilloma of the skin over the lumbar region, tubercular areas in which lime salts have been deposited, calcified renal cysts, phleboliths, concretions in the appendix, foreign bodies in the alimentary canal, especially metallic salts of bismuth, iron or mercury taken as medicine, must be kept in mind, to aid in the differential diagnosis.

An X-Ray examination may also give us considerable knowledge as to the pathological state of the kidney itself. A tubercular kidney casts a mottled shadow and must be differentiated from a phyonephrosis and from a large stone extending into the calices. In recent years the injection into the ureter and renal pelvis of a five to ten per cent solution of freshly prepared collargol for diagnostic purposes has become quite popular. This procedure is best carried out in the hospital where the patient should be kept under observtion for twenty-four hours.

In conclusion: The field of Roentgen diagnosis of urinary calculi has rapidly broadened and the X-Ray is now an indispensable adjunct to clinical methods.

It must be remembered that many cases of oxaluria and phosphaturia present symptoms so closely allied to those of kidney stone that only a radiographic examination can indicate whether the treatment should be medical or surgical.

DISCUSSION.

A. P. Overgard, M. D., the doctor, is to be highly commended for bringing this phase of the Roentgen-ray Diagnosis before you. As he has already stated, it gives positive evidence of calculi and where located. Furthermore, it clears up many a case of obscure pain in the back and helps you to make a positive diagnosis and thus gets your patient the desired cure for his ills.

I wish to take issue with the doctor in the use of collargol. This drug has produced great pain and renal colic, which can be avoided by using argyrol. Last month I had an opportunity to see Dr. Braasch of the Mayo Clinic using this, and he claims it gives no ill effects and still outlines the parts.

Last week I made a Roentgenogram of a bladder for supposed calculi, but obtained a negative finding. In going over the clinical history I found this man could only retain his urine for one to two hours and at night never more than three hours. Hence I filled his bladder with solution of argyrol and it could hold less than three ounces. Yet the Roentgenogram shows a well outlined bladder. This accounts for the frequent urination.

Do not jump to the conclusion that the Roentgen-rays alone can establish a diagnosis. I find that more complete and full clinical history that comes with a case the better enabled are we to clear up obscure points and help in the diagnosis. The Roentgen-ray is only an addition to our clinical facilities and should be used as such only.

Another point that is before us is to differentiate between a renal calculi and bibiary calculi. It is now quite possible to get quite a per cent of gall-stones or indirect evidence of their presence, but in so doing we must be on our guard for a right renal calculi. Just a short time ago I made some Roentgenograms of a woman, the lower edges of whose gall-bladder was on a line with the anterior superior spinous process of the ililum. So today we find that the Roengen-ray, when correctly made use of, is a big aid in arriving at a correct diagnosis.

DR. CHRISTIE: The value of the X-ray is overestimated. It should be used in every case but is not infallible. The percentage of cases in which the X-ray shows the stone is about 50%, according to the reports of many competent X-ray men. This depends upon the character of the stone. The oxalate stone shows the plainest, the phosphates next and the urates next. Hence the X-ray is not sure —and the clinical symptoms should not be neglected.

DR. STOKES: What is the clinical value of the vaccines?

DR. BRIDGES: It is very true that germs form the nidus of stones but the vaccines have given no results yet in the prevention or treatment. In infections of the genito-urinary tract outside of the stone some brilliant results from the use of vaccines have been seen. But this treatment was always combined with other treatment, so it would be hard to say exactly how much of the cure was due to the vaccines. The colon bacillus is the most common offender and the vaccines are most effective against this organism. Even the stock vaccines may lead to improvement after failure of other therapeutis. In the third degree of displacements of the kidney the elevation of the foot of the bed along with other treatment as rest, and forced feeding may result in a cure. The symptoms in real crises from this cause may often be immediately removed by the partially inverted position. The difficult cases are those of advanced renal infection which has not been properly diagnosed and treated. A thorough urine examination should be made oftener.

DR. DAVIS: The reference to the infallibility of the X-ray was not as Dr. Christie interpreted it. The positive X-ray diagnosis is certain but the negative is not. The percentage of cases recognized by X-ray is, however, higher than 50 per cent in the hands of present skilled men. According to Dr. Ballard, it is nearer 90%. In an infected kidney the rule is not to operate unless all other treatment has failed and the symptoms still persist. The position in bed recommended by Dr. Bridges is a very good point. In a movable kidney with gastric symptoms the position may be a very great aid in diagnosis. Symptoms will subside if movable and not in others.

DR. A. C. STOKES: A man had considerable pain in his right kidney, swelling, his temperature was up to 104, his pulse 120, and all the symptoms referred to the right kidney. He was so sick that we expected him to die. He was, therefore, hurried to the hospital and the right kidney exposed and found to be very large and congested, no pus in evidence. We, therefore, did not remove the kidney.

The symptoms of pain in the back continued and he did not recover. We attempted to catheterize. We had no trouble in catheterizing the right ureter but in the left one we me with an obstruction about two inches up the ureter. X-ray pictures showed nothing. We could not advise an operation for something we did not quite understand. The man became disgusted with us and went to Rochester, Minn., where the results of their examination were identical with ours. They advised that the ureter on that side be operated to determine what the trouble might be. To this our patient agreed, and upon operation a stone was found in the left ureter about two inches from the mouth of same. The stone was removed and the patient made an uninterrupted recovery.

This case illustrates how all the symptoms may refer to one kidney while the real pathology is in the other.

The only points, therefore, that I wish to emphasize in Dr. Davis's paper are, first, the indefiniteness of clinical symptoms in kidney diseases and, second, that harmless kidney stones do not exist very frequently, and unless some special contro-indication exists, should always be removed when discovered.

DIGITALIS THERAPY.

By W. F. Milroy, M. D.

Dr. Osler has been credited with the remark that one may correctly estimate a practitioner's skill in the use of drugs by the way he uses digitalis. However much the scientific knowledge of digitalis may be advanced the adaptation of the remedy to the individual must always remain a matter of art. Digitalis may be compared to the golf club. In the hands of one man victory is uniform while in the hands of another defeat is equally certain; and yet the latter may know more of the theory of the game than the former. Skill results from the constant solution of similar problems. For this reason it has seemed to me to be worth while to refresh our memories in regard to this most valuable and yet most difficult drug to employ to the greatest advantage. Our subject limits us to the therapeutics of the drug and I shall try to not wander far. Even thus in a twelve minute paper I can only touch important points in a disassociated way. I shall attempt only a few of these.

One of the greatest difficulties in the use of digitalis has always been the uncertainty as to the activity of the various preparations of the drug, whether used as a whole or as active principles. Fraenkel found infusions obtained from ordinary sources vary in the proportion of 4 to 1. Ziegenboin has shown that there is a difference of from 100 to 200% in the strength of the leaves of the same crop gathered in different parts of Germany. Focke found that digitalis leaves gathered in July and kept hermetically sealed under the usual circumstances had lost a large portion of their strength in a year. Kochman fond that only two out of five infusions of digitalis obtained from different sources were capable of producing digitalis action in dogs. Edmunds examined 17 specimens of tincture of digitalis which showed very great variation. Two supposedly standardized specimens of the same manufacturer showed variations in strength of 100 per cent. Four preparations of the same manufacturer, not standardized, showed a variation of 400 per cent. These observations I mention as showing how impossible it is to prescribe the drug intelligently, unless one has some guide besides a measure of the dose that is given. The physician's success and the patient's recovery, if dependent upon this medicine, must be a matter of chance.

To meet this difficulty, the endeavor has been made to establish a physiological standard. Several standards have been adopted based upon the effect of the drug upon the heart of the frog. "The Heidelberg frog unit" is such an amount of any preparation of the drug as will produce the complete arrest of the frog's heart action in 30 minutes, the frog weighing 30 to 40 grams. There are other "frog units" but what we need is a single one put in general use.

Probably as a result of the use of inert specimens of the drug, the belief arose that the heart ceased to be influenced by digitalis uniformly after the drug had been administered for a greater or less length of time. Therefore we were taught that one should refrain from its use except when it was impossible to secure relief from serious symptoms by any other means. The idea was to hold in reserve this most valuable heart tonic as long as possible for the support of the patient when all else had failed. Now the fact of the matter is that digitalis does not bestow upon the heart any additional strength at all. It simply enables it to employ the strength it has to better advantage. Furhermore, Fraenkel and others have conclusively shown that the heart never loses its susceptibility to the action of digitalis so long as the muscle retains the power to contract it at all.

The primary clinical evidences of the effect of digitalis are diuresis, pulse pressure and pulse rate. Observation of the quantity of urine eliminated, when it is proposed to give this drug in full doses, should never be omitted. It should if possible be measured before the administration of the medicine is begun. One of the most constant and reliable evidences that the drug is acting is an increase in the quantity of the urine. If the output of urine is as carefully studied as is the temperature in typhoid fever one will find himself upon very safe ground. I believe there is mighty little danger of digitalis poisoning so long as the kidneys are responding in this way. Should there fail to be an increase in the amount of urine the drug is being retained and there is being added to the already toxic blood the toxicity of the drug as well.

Pulse pressure is the difference between the systolic and the diastolic blood pressure. An increase in the pulse pressure is a very sure guide to the effect of digitalis in cardiac insufficiency.

As a rule full doses of digitalis reduce the frequency of the pulse. Personally I have not seen this fail, though some clinicians deny that it is a sure indication.

Now in view of the total unreliability of the preparations of the drug and the fact that the number of grains or grams or drams or drops means so little as indicating the "frog-units" of digitalis that a patient is receiving, I want to urge the necesity of giving it with reference to the effect produced rather than dosage by measure, these effects beng estimated as I have indicated. If this is done very few instances will be seen in which a decompensated heart will fail to respond to the drug. When such a case is seen it will be one in which the power of the heart muscle has become exhausted and the end of that patient is near. It has undoubtedly happened many a time in critical cases of heart decompensation that patients have been lost who would have been saved had the drug have been given boldly in this way.

As to the indications for the use of digitalis Iwould say that in all conditions of cardiac insufficiency where the heart is unable to maintain the circulation this drug should be used. This is a very simple rule. Some have held that in cardiac failure of the lesser degree this is not the best treatment. It is without question true that complete rest in bed will in such cases generally permit the heart to recover its tone and again accomplish its work successfully. However it must always be remembered that sooner or later the heart is bound to succumb on account of degeneration of the cardiac muscle. For its nourishment this muscle depends upon the coronary arteries. These are filled only where there is a firm contraction of the ventricles. Therefore ,while not underestimating the great value of rest, there is evidently substantial reason for beginning thus early the use of digitalis.

In his address before the nineteenth congress of internal medicine, Sahli distinguished five varieties of stasis, viz., cardiac, respiratory, high pressure, vasomotor and splachnic. Cardiac stasis is the insufficient output of the systole depending upon absolute weakness of the cardiac muscle. Respiratory stasis depends upon pulmonary obstruction, as an emphysema, chronic bronchitis, asthma, etc. This affects the right heart primarily. High pressure stasis is frequently overlooked because of the presence of the high pressure. This high pressure in the presence of cardiac weakness Osler spaks of as a paradox. It is supposed to depend upon veinous stasis in the centers of the medulla giving rise to a condition of vaso-construction. The administration of digitalis in this condition to the extent of improving the cardiac contractions sufficiently to relieve the passive congestion mentioned, results in a fall of the arterial tension and the condition of the patient is much improved. Vaso-motor stasis resembles cardiac stasis clinically but depends upon so great a dilatation of the smallest vessels that the heart receives too little blood during diastole. In splanchnic stasis the capillaries of the abdomen are so greatly dilated that most of the blood is retained in them, expressed by the old saying: "The patient is bleeding into his own portal system." In each of these varieties of stasis digitalis is indicated.

Some have opposed the use of digitalis in the exhaustion of the heart which occurs at times in cases of contracted kidney with the usual high blood pressure, fearing to produce rupture of an artery.

It is certainly true in this condition that the heart has a mighty big load to carry in maintaining the tremendous arterial tension that is present in these cases, whatever may be the cause. There is a limit to its power and sooner or later it must tire out. What are we to do when we have exhausted all other resources? As far as I am able to see there is no choice but to brace up the heart or allow the patient to die. Admitting that it is our last trump let us give the digitalis. If we withhold it the patient will die. He can do no worse if we give the drug and generally he will improve and the symptoms be relieved for a time.

When gastro-intestinal symptoms are present with cardiac stasis they are in the great majority of cases secondary to the stasis, and therefore digitalis is the best remedy for these symptoms. It may be necessary to give it hypodermically or by the rectum.

Such conditions as arythmia, palpitation and nervous forms of tachycardia are not benefited by digitalis and indeed may be aggravated by it.

It is a not infrequent error to prescribe digitalis for patients who have a valvular lesion well compensated. Fraenkel and Schwartz have demonstrated, so they claim, that the drug exerts no effect in therapeutic doses upon a heart that is normal or perfectly compensated. The muscle is not made to contract more strongly nor does hypertrophy occur even when the drug is given for a long period.

I shall content myself by referring to just one more topic.

The correction of the error in reference to the action of digitalis, in the establishment of the fact that the heart never loses its ability to respond to the influence of the drug so long as it retains the power to contract at all, was a tremendous gain. The final point to which I am referring is the continuous use of the drug during the life of the patient or for a long period. When it is admitted that this use of the drug is correct the amount of the dosage will be more or less a matter of experiment. The most frequent conditions in which this use of the drug is indicated are fibrillation of the auricles and very serious valvular disease. When decompensation occurs in the latter condition for the first time, one may be pretty sure that he will be able to obtain restoration of the heart to a fair condition. When he meets this state of the heart a second or third or a fourth time in a patient, if restoration shall be accomplished it will be after days of anxious waiting and watching and struggle, realizing meanwhile that the prospect is seriously greater, with each recurrence that the best effort will result in failure. Now in these cases suitably regulated doses of digitalis taken continuously will often forestall and prevent the recurring breaks in compensation. When the heart is restored after complete saturation with digitalis the dose of the drug should of course be diminished but not discontinued. A very good guide is to keep the tonicity of the heart muscle at such a point that there will be a minimum amount of shortness of breath. In chronic fibrillation of the auricle a good rule is to keep the pulse in the neighborhood of 90.

A third type of case is the later stage of arteriosclerosis when the high blood pressure tends to be followed by a pressure so low that it falls below the line of compensaiton. The dose in these cases will vary as has been intimated. One will need a grain or perhaps two grains daily. Others will need this amount only once in two days or possibly once or twice a week. A patient under this treatment should be seen by the physician at least every three or four weeks. The fact that too much of the drug may be found to produce nausea or other bad symptoms must not be looked upon as ground for discontinuing it entirely. The long continued use of the drug in small doses does not in any way interfere with securing the result of larger doses should conditions arise requiring their use. Furthermore, digitalis may finally produce a true strengthening of the heart, when its use may be discontinued.

DISCUSSION.

DR. JEFFERSON: Digitalis is a life-saving drug and is often very valuable in prolonging life. The unreliability of digitalis was found in experiments by McKenzie and Cushing to be due not to impotency of the drug but to the peculiar susceptibility of individuals. A man must be a good diagnostician to use digitalis intelligently. In acute infectious diseases little can be expected. It is best in rheumatic conditions and chronic hearts. In giving digitalis marked large doses must be given for a physiological effect. The dosage should be intermittent, given for three or four days and then omitted for as long, perhaps substituted by some other cardiac stimulant.

DR. ————: Is there not a warning of the passing of the physiological point in the administration of digitalis by a rapid drop in the blood pressure? This has been observed in a number of cases with the patient still in the improved condition, and has been used as an indication for the stopping of the digitalis.

DR. JEFFERSON: If it is given in very large doses the blood pressure will come down. Other therapeutic agents should not be neglected.

DR. MILROY: The digitalin in the market is no good. Some standardized leaves should be used as Allen's leaves. The dose of the powdered leaves for decompensation is 1½ to 2 grains four times a day, kept up until you begin to see an effect. Then stop for a few days and start again not so high. For prolonged use of digitalis ½ to ¾ of a grain may be used.

THE DECENNIAL REUNION OF THE CLASS OF 1904.

Although over twenty members of the class of 1904 signified their intentions to come, only sixteen put in an appearance while only twelve of these were present at the class dinner at the University Club.

Those present during the week were: Knode, Patton, Kerr, Meisenbach, Hummer, Alliband, Decker, Bening, MacArthur, Nye, Sample, H. G. Penner, Panter, Eby, Kohont and Trostler.

At the Monte Carlo Evening our bowling team, consisting of H. G. Penner, Sample, Kerr, Meisenbach and Hummer, defeated the Alumni Association team by 54 pins. In a later match the '04 team met its first and only defeat by losing a match to the Faculty team by three pins.

W. E. Dickinson (P. & S. Chi., '04), who was with us the first three years was present Monday. Gopher says he feels more like one of us than like a P. & S. man. He is located at Montrose, S. D.

Francis Petr is a surgeon in the Austrian army. This is his second war, he having seen service as surgeon in the last Bulgarian war. "Jake" Meisenbach is the only bachelor we have left and rumor has it that there is still hope that he will soon join the benedicts. This was Kerr's and Hummer's first time back. They say that they will come every year hereafter. Hart and Pedersen promised to come but somehow failed to make connections. Bellinger was sick abed with rheumatism and L. E. Penner was in Chicago doing post-graduate work. Prest has recently removed from Comstock to Deering, Nebr. Underwood has moved to Memphis, Tenn.

SATURDAY, OCTOBER 17, 1914

CLINIC.

Douglas County Hospital, October 17, 1914.

By Joseph M. Aikin, M. D.

CASE I.

Male, married; machinist, age 35. About five years since he evidenced delusions of persecution. He could not name any one specifically who was making damaging reports against him. His sleep was not good, appetitie good, but poor digestion, and he lost weight. He kept his shotgun in his bed and repeatedly told his wife he would shoot "some of those people if they did not cease peeping through the window at him." He did not work, occupying his time berating his alleged persecutors whose voices "he heard" in adjoining rooms. After two months the board of insanity adjudged him insane and ordered his commitment. His family gained permission to place him on a farm with friends outside of Nebraska. A little later he was placed in a state hospital in that state. On learning he was a resident of Nebraska they deported him to Omaha. There he was detained in the home of relatives, but because of increasing delusions, hallucinations and homicidal tendencies, he was committed by our board of insanity to the county hospital. Delusions of great wealth, business ability and good health, marked his every word and act. He slept poorly and was very noisy. He argued vehemently against his alleged persecutors. Notwithstanding repeated physical examinations, which were negative, his mental condition varied from boisterous pugilistic demonstrations to quiet, even,, non-communicative periods. The periods of exaltation were longer than those of depression. At no time would he admit being ill and maintained that he was unjustly deprived of his liberty. Lessening of his mental horizon was noticeable. Our diagnosis of mania with a bad prognosis gave occasion for other medical advice resulting in an operation for a brain tumor. There was no tumor nor other evidence of tissue pathology found. The wound healed readily, with no change whatever in the patient's mental condition. He gives evidence of continuous delusions, in dementing, and losing in weight. At no stage of his mental illess has he had any fever. He did not show evidence of improper function in any of his vital organs. His present attack is the third of its kind in his history. The first lasted but a few weeks, then he was normal for two years. The second lasted several months, when he was "almost himself" for three years. He is now a case of chronic mania, with a lease on life of one to three years, and is a public charge.

CASE II.

Male. Bachelor, farmer, age 50. From early childhood he and two of his three brothers (one sister only; she died in infancy) were nervous "just like father." His intelligence and education are a good average for his station in life. He does not suffer pain, can assimilate his food and had always been a good sleeper. His sensorium is not impaired, his deep reflexes exaggerated and ankle clonus is present, his sphincters are normal, but his locomotion is greatly impaired. He drags both feet rasping the floor with the inner side of his shoe till the soles are quite worn off. He uses a cane to aid his equilibrium when walking. His muscles are below normal strength and his voice implies weakness of the speech muscles. His pupils are normal, and though muscle balance seems good I ask you to accept the statement of an occulist affirming an existing lateral nystagmus. This is known as hereditary spastic paraplegia. It is the least common of the four types of hereditary ataxia. The other three are the hereditary spinal, or Friedreich's ataxia, hereditary cerebellar ataxia, and hereditary ataxic paraplegia. Their cause and mode of development are similar but the symptoms depend on the fact of a posterior column involvement in the hereditary spine (Friedreich's), the lateral columns in the hereditary spastic paraplegia—the form we see here— and lastly the pathology is mainly in the cerebellum. The prognosis goes from bad to worse. The duration of life is not impaired and pain is not a prominent factor. Treatment is of little avail but Dr. Stillwell says antipyrin ameliorates the disease.

CASES III, IV, V, VI, VII, VIII.

These are a group of six tabeics, five males and one female. Their ages ranged from 36 to 60 years. The youngest age of onset was 18 in the female. She was syphilitic at 16 and a paralytic at 28. She is now 37. Three of the males admit syphilis and two deny infection. The Wasserman is positive in the woman and in three of the men. It has not been made on the other two, one of whom admits infection. The special features I wish you to see the joint involvements. In the woman you see one leg can be so flexed at the knee that the foot rests on the groin of the same side, or may be placed parallel with the thigh on its outer side. The head of the femur on the other side is gone, the shaft is easily palpated, and movement of the thigh at its proximal end is limited only by the muscles and lax ligaments. In one of the males a fracture of the neck of the femur never united and the proximal end of the bone is easily palpated. In other male both shoulders and one knee present enormous Charcot joints. In all these patients the lighting pains persist, control of the sphincters is lost, the Argyle-Robertson pupil is obvious and anasthesias are present. In one of the men the pains ceased for a time in the legs, during which period he suffered intense gastric crises. After several months the gastric crises ceased and the pains appeared again in the legs. In no one of these patients is the mentality below their normal.

CASE IX.

Male. Bachelor; labor. aet 40. Acquired "a touch" of syphilis 17 years since. It did not inconvenience him for work nor check his worship at the shrine of Venus. Four years since his left leg and arm gradually lost power, but was not paralyzed. In four to six weeks strength had almost wholly returned and no further symptoms evolved till about six months since he experienced pains (rheumatism) in his hips, and his legs felt heavy and tired easily. About the same date he noticed a slowness of sphincter relaxation when initiating nicturitton, and incomplete shut off power. He claims that condition prevailed up till one month since when he walked into this hospital for treatment. He has grown rapidly worse, he cannot walk

Douglas County Hospital
Clinic, Saturday, October 17, 1914

or even stand, his sphincter control is absolutely lost, the girdle sensation around his lower dorsal region is marked, his knee jerks are absent and the "toe jerk" one foot is present.

Diagnosis is transverse myelitis—Erb's spinal paralysis—secondary to syphilitic infection. Prognosis absolutely bad for recovery, and discouraging for improvement. He is now carrying 1 to 3 degrees of fever due to a cystitis which condition is the one most frequent immediate cause of death in chronic myelitis.

CLINIC.

Douglas County Hospital, October 17, 1914.

By C. R. Kennedy, M. D.

S. L.; age 70; laborer; married.

Complaints—Frequent urination and dribbling.

Family History—Negative.

Personal Habits—Never drank alchoholics to excess, smokes, and uses no drugs.

Past Illness—Disease of childhood, rheumatism, denies veneral infection. Paralytic stroke.

Present Illness—Started after stroke of paralysis but was not troublesome until three months ago. Patient had little trouble during the day but would urinate from three to five times during the night, usually after 12 p. m., and there would be a constant dribbling between times. Patient complains of toes being swollen and burning.

Physical Examination—

Eyes—Reaction to light sluggish, to distance normal.

Lungs—Normal. Some emphysema. Accentuation of second pulmonic sound.

Heart—One and one-half inches outside of nipple line. Blood pressure 195 m. m. Hg.

Liver—Down three fingers' breadth below costal margin.

Gastro-Intestinal Tract—Normal

Teeth—Poor.

Tongue deviates to left.

Some tremor when excited.

Right arm and leg somewhat weaker than left.

Knee jeks exaggerated.

Some oedema over tibia.

Some varicositics in veins of legs.

Feet show pigmentation of skin and are colder than rest of the body.

Urine—700 CC. in twenty-four hours.

Acid reaction.
Sp. Gr 10 20.

Albumen and sugar absent.

No elements shown by microscope.

Discussion by Dr. Kennedy.

In view of the fact that you have had so many operative clinics during the past week, I thought it might be interesting to make this a diagnostic hour and to consider the problems which come up in the examination of a genito-urinary case. This patient we have before us comes with the complaint that he urinates too frequently. This is all he complains of in his present illness.

Now let us see where this points. We find this symptom may be produced by a great many pathological conditions involving the urethra, bladder, kidneys, cardio vascular or nervous system, or a manifestation of a metabolic disturbance.

Our next step then is to inquire as to the amount passed at each urination; if large, it may be due to diabetes mellitus, diabetes insipidus, interstitial nephritis, arteriosclerosis, tuberculous kidney, tumor, stone or diseases of the nervous system. We find in this case the amount is small, so we then think of obstruction to the outflow as from stricture or enlarged prostrate, irritation of bladder from cystitis, tumor, stone or a kidney condition such as tuberculosis, stone, congestion, acute nephritis.

Now we have by our last step narrowed our probable diagnosis down considerably and we will see how much we can learn from the symptoms. We find on our next question the frequency is greater at night, which means lying down increases it. Now we know that a patient with stone gets relief from lying down, because the stone rolls back from the neck of the bladder and there is less irritation. We get the same condition in vesical tuberculosis because the lesions are mostly at the trigone and they are not so irritated when lying down. In tumors of the bladder the position does not make so much difference, but in prostatic obstruction the prostatic veins become congested in the recumbent posture, causing increased nocturnal frequeny.

Now I think this is about all the information we can deduce from the one symptom, frequency, so we must now proceed to eliminate these conditions till we arrive at a correct conclusion.

Taking these possible conditions in the order in which we gave them, we will see in what way we can eliminate them.

If he has diabetes mellitus, we will finid a urine of high Sp. Gr. and containing sugar. These conditions we do not find.

If diabetes insipidus we will find a large quantity of urine of low Sp. Gr., no sugar. No signs of interstitial nephritis, and a history of a large liquid intake. These conditions are none of them fulfilled.

Interstitial nephritis should show us a considerable quantity of urine, low Sp. Gr., acid reaction, (small amount of albumen, few casts and few leucocytis may or may not be present) and in addition, signs of increased resistance to the blood stream, as shown by hypertension, accentuation or aortic sound and hypertrophied heart.

Arteriorslerosis would give us the same conditions with the addition of hardening of the arteries and probably signs of interference with the circulation in various organs. We find here sclerosis of the vessels and blood pressure 195 m. m. Hg.

Tuberculosis of the kidney should give us an increased quantity of urine acid reaction and containing a small amount of pus and blood and the presence of the tubercle bacilli. This then can be ruled out.

If renal tumor, we should find increased amount of acid reaction. Probably blood, and a swelling in the loin.

Renal calculus should give us pain in the lumbar region although about 10% of these cases have no pain, and we would expect to find blood and pus in the urine and if there was anything pointing toward it, we would fall back on an X-ray examination, which should not show any stone unless a pure uric acid stone which is very rare.

We also know that in the last three conditions we usually get a sharp pain in the affected side, on heavy or first percussion (after Murphy) which gives no result here.

As to the nervous system:

Frequency, as a result of disease of the nervous system, is usually, though I have seen one case in which on account of incontinence of urine the patient was referred for a cystoscopic examination and the presence of a trabeculated bladder, without obstruction, led to a diagnosis of tabes, and this was borne out by further examination.

This then brings us up to conditions involving the bladder and urethra.

Rectal palpation shows us a firm prostrate without enlargement, so that if there is hypertrophy it must be intro-vesical and will be shown by the cystoscope, which we will use in a few moments.

A sound passes into the bladder easily, so we cannot have a stricture. We get no click on moving the sound in the bladder, so in all probability we have no stone, so now we will inspect the bladder. This last step should pretty nearly clear up the diagnosis.

We now insert the cystoscope and find there is some obstruction in the posterior urethra which is probably due to the prostrate. The urine is quite clear and we do not need to irritate the bladder, but simply fill it with water.

Now the first thing we notice is that the mucous membrane is irregular and seems to be covered with depressions. This means the bladder has been distended and the mucous membrane has been pushed between the muscle fibres, forming what we call trabeculation.

As we look at the neck of the bladder we find a bulging on the lower side. This means we have a hypertrophy of the middle lobe and this accounts for the trabeculated bladder. Now as we turn the cystoscope toward the patient's left we see a little slit just in the shadow of a trabeculus and if we watch it a while we see a swirl of urine as it discharges. We now rotate the cystoscope to the other side and see the opening of the right ureter. It is in plainer view.

We now inspect the rest of the bladder and find no stones, tumors, ulcerations or foreign bodies. Let us see now if we can catheterize the ureters. The catheter goes into the right ureter but not very readily, a No. 6 fitting very snug.

On the left side we find the catheter will not enter, there being some obstruction just inside the meatus.

We will leave the right catheter in place and Dr. Moon will inject 1 c. c. of Phenol sulphone pthalein into a vein in the right arm On collecting the urine and testing for dye we find it takes nineteen minutes to make its appearance from the right ureter and about the same for the left kidney. We should have found it in three to five minutes after giving it intravenously, so we must conclude we have a very great decrease in the functional capacity of the kidneys; that it is bilateral and probably due to arteriosclerosis.

We will watch the patient further and get some idea as to the time it takes to excrete the dye. (Only 35% of the dye was excreted in twelve hours.)

Now to sum up our diagnosis, we find our patient has:

Arteriosclerosis with cardiac hypertrophy and arteriosclerotic kidney.

Varicose veins in legs.

Partial paralysis of right arm and leg and left side of tongue.

Hypertrophy of middle lobe of prostrate with a trabeculated bladder.

At the present we would not consider it best to operate upon this patient and will attempt to improve his condition my medical means, although if his obstruction should become too great we could probably remove his prostrate safely by using novacan infiltration and a very little general anaesthetic.

Now as to our functional kidney test, we are using a method which has been worked out by Dr. Moon, our resident physician here, and as it has the advantages that it is simple, accurate and inexpensive. As it may be of value to some of you, I will have Dr. Moon give you his method.

FUNCTIONAL KIDNEY TEST.

On the following outline this test has been simplified and made so that it may be done without any special apparatus whatever, but the accuracy of the test has not been impaired. The drug used is phenol sulpho pthalein which may be bought in ampules at $1.00 per dozen.

The patient is requested to urinate and is then given 300CC of water by mouth. Twenty minutes later 1CC of the dye (each ampule contains more than 1CC) is injected ddeep intra muscularly. At once a catheter is introduced into the bladder and the urine allowed to drop into a test tube into which has been placed a drop of a 25% sodium hydrate solution. The urine containing the dye turns red on the first contact with the sodium hydrate. The time from the injection to the first red coloration in the test tube should be from 5 to 11 minutes. Then remove the catheter and have patient save all urine voided up to and at one hour's time from the injection and save the whole amount and label first hour urine. He then saves all voided during and at end of second hour. The amount passed each does not matter whether 1 or 44CC. Dilute each hour's urine up to 1000CC add 1CC of a 25% sodium hydrate solution and compare with your scale which you have made.

Forty to 60% of the dye should be excreted the first hour while 20 to 45% is normal for the second hour secretion.

The method of making your own scale is as follows:

Take one CC of your dye and dilute with water to 1000CC, call this your 100% solution and put some in a test tube and label 100%. Then make a 90 and 80%, etc., by using say 90 drops of the 100% and 10 drops of water, etc. In the end you have 10 test tubes ranging from 10 to 100% strength.

Then you simply compare the color of your first hour solution and second hour solution with your test scale. If you test this home made scale with an expensive colorimeter you will find only about 1% 2% difference which does not in the least interfere with the efficiency of your test.

REPORT OF FINANCIAL SECRETARY, COMMITTEE ON ARRANGEMENT, FIFTH ANNUAL ALUMNI WEEK.

RECEIPTS.

Dr. Bridges, W. O	$ 30.00
“ Davis, B. B	30.00
“ Gifford, H	30.00
“ Jonas, A. F	30.00
“ Owen, F. S	30.00
“ Crummer, L	25.00
“ Findley, P	25.00
“ Lord, J. P	25.00
“ Stokes, A. C	25.00
“ Summers, J. E	25.00
“ Aikin, J. M	20.00
“ McClanahan, H. M	20.00
“ Somers, A. B	20.00
“ Bliss, R. W	15.00
“ Hollister, R. R	15.00
“ Lemere, H. B	15.00
“ Milroy, W. F	15.00
“ Patton, J. M	15.00
“ Pollard, C. W	15.00
“ Schalek, A	15.00
“ Wherry, W. P	15.00
“ Ballard, C. H	10.00
“ Bridges, E. L	10.00
“ Hull, C. A	10.00
“ Kennedy, C. R	10.00
“ Knode, A. R	10.00
“ Potts, J. B	10.00
“ Anderson, W. N	7.00
“ Cutter, I. C	7.00
“ Dodge, R. A	7.00
“ Fricke. A. A	7.00
“ Hall, B. W	7.00
“ Hyde, J. F	7.00
“ Lavender, W. R	7.00
“ Lieber, Chas.	7.00
“ Moore, J. C., Jr	7.00
“ Morison, C. C	7.00
“ Nilsson, J. R	7.00
“ Peterson, A. O	7.00
“ Rubendall, C.	7.00
“ Smith, S. H	7.00
“ Taylor, W. H	7.00
“ Updegraff, E. J	7.00
“ Wigton, H. A	7.00
“ Hall, L. S	7.00
“ Hamilton, H. B	7.00
“ Manning, E. F	7.00
Cleveland Drug Company	15.00
Omaha Surgical Supply Co	15.00
Total	$685.00
Banquet Tickets	85.00
Total collected	$770.00

EXPENDITURES.

Stamps	$ 2.20
Stenographer	5.00
Bowling (Metropolitan)	16.00
Pool Table (Metropolitan)	3.80
Banquet (University Club)	287.00
Cigars (University Club)	9.80
Flowers (Hess & Swoboda)	12.00
Cigars (Baird Pharmacy)	48.95
Printing (Barton)	64.25
Money (Boyles)	6.00
Piano (Hospe)	5.00
Music (Dimick)	7.00
Reporting Clinics	20.00
Total	$497.00
Total Collections	$770.00
Total Expenditure	497.00
Cash turned over to Secretary-Treasurer	$273.00

W. H. Taylor, '11.
Financial Secretary

COMPLETE ROSTER

Alumni Association, University of Nebraska, College of Medicine

A

'96 Abbott, Herbert A Douglas, Wyo
'05 Adams, B A Bristol, S D
'03 Agee, James C Valley, Nebr
'06 Allen, John Franklin Reliance, Wyo
'01 Allen, S G Clarkson, Nebr
'04 Alilband, Geo A Elliott, Iowa
'97 Anderson, Chas A Stromburg, Nebr
'05 Anderson, W H 415 Lumber Exchange Building, Seattle, Wash
'05 Arbogast, H J Bartley, Nebr
'83 Arbuckle-Fix, Georgia A Gering, Nebr
'91 Archerd, J W Clay Center, Nebr
'94 Armstrong, R B Papillion, Nebr
'07 Arnold, E W Bigalow, Minn
'13 Arnholt, Milton F First Nat Bank Bldg., Lincoln, Nebr
'87 Atkinson, Ira C 820 18th st, Lincoln
'10 Anderson, Wm Nance 800 City Nat. Bk Bldg, Omaha, Nebr

B

'92 Baker, Andrew J Grand Island, Nebr
'05 Baker, M D Tilden, Nebr
'07 Banghard, Edgar David David City, Nebr
'02 Barns, Frank M 248 Brandeis Theater Bldg, Omaha, Nebr
92 Barron, Thos Edwin Steele City, Nebr
'02 Bartholomew, Geo F Central City, Nebr
'00 Bartlett, A L Spalding, Nebr
'03 Bartlett, Grove W Scribner, Nebr
'15 Barry, August C Clarkson Hospital Omaha, Nebr
'99 Baughness, Harry Diller, Nebr
'94 Beal, Frederick E Deceased
'11 Bald, A A Platte Center, Nebr
'97 Beattie, David W Deceased
'99 Beatty, John R Butte, Nebr
'03 Beck, F L Geneva, Nebr
'04 Bellinger, S W Deceased
'04 Bening, John F Shambaugh, Ia
'03 Benson, H W Oakland, Nebr
'00 Benton, Joseph E Central City, Nebr
'00 Betts. G S Banner, Ill
'00 Betz, W H Bellevue, Nebr
'94 Bisgard, James Harlan, Ia
'95 Bjorkman, Geo Gladstone, Mich
'03 Black, Emil C San Diego, Calif
'87 Blickensderfer, Joseph New Philadelphia, Ohio
'11 Bocken, Herman Harlan, Ia
'97 Borom, Schuyler C 313 Washington Ave, Minneapolis, Minn
'91 Bowerman, Adda (see Mitchell) Council Bluffs, Ia
'93 Brevoort, Harry S Brandeis Theater Bldg., Omaha, Nebr
'00 Brewster, F A Beaver City, Nebr
'96 Bridges, Edson L Brandeis Theater Bldg, Omaha, Nebr
'83 Brothers, Howard DeW Agra, Kas
'94 Brown, John L Deceased
'06 Brush, Edward I Norfolk, Nebr
'07 Buis, John Pender, Nebr
'10 Buol, George Ravenna, Nebr
'99 Burdick, Harry E David City, Nebr
'88 Burgess, F. D Cedar Rapids, Nebr
'11 Burnham, F A Arnold, Nebr
'95 Butchart, Geo N Hibbling, Minn
'96 Butler, Albert Manlia Constabulary Hdquts, Manila, P I
'12 Brown, Andrew D Central City, Nebr
'89 Burbank, S L Deceased
'14 Burns, Hiram Delaney, Clarkson Hospital, Omaha, Nebr

C

'04 Campbell, Rosco C Plaza, N D
'98 Campbell, Stuart A Tilden, Nebr
'02 Carlile, Amos W Manning, Ia
'10 Carson, Harry R Norfolk, Nebr
'95 Case, Ernest S Stockville, Nebr
'03 Chambers, Oliver Rock Springs, Wyo
'97 Chan Chang Chi Shanghai, China
'97 Chapman, Alma J Hastings, Nebr
'02 Chapman, William H Blythe, Calif
'97 Childs, R F Audubon, Ia
'02 Christensen, Christen J Deceased
'92 Christensen, Mads C Deceased
'02 Christie, B W 330 Bee Bldg, Omaha
'09 Christie, Ralph C Clarks, Nebr
'07 Christy, Edgar Hastings, Mills Co, Ia
'98 Clark, Nellie L Clovis, Calif
'97 Clark, William K Niobrara, Nebr
'96 Clements, G P West Riverside, Calif
'13 Cobb, Elliot C Sioux City, Ia
'89 Coffin, C E Winter Park, Fla
'02 Cooper, A H Lander, Wyo
'02 Craft, Wm T

'88 Crawford, Andrew Scotts Bluff, Nebr
'89 Cummings, Edgar D Plattsmouth, Nebr
'97 Cunningham, Harry A Salem, Ill
'94 Curtis, Joseph M Tecumseh, Nebr
'10 Cutter, Irving S University of Nebr. College of Medicine, Omaha, Nebr

D

'85 Dalby, W M T Deceased
'00 Davis, Homer Genoa, Nebr
'03 Davies, J S Granville, N D
'93 Davies, James F Callaway, Nebr
'95 Dean, Willis W Sioux City, Ia
'04 Dempster, Roy P Granger, Wash
'88 Dervries, Joshua S Fremont, Nebr
'82 Diedrich, Edward Deceased
'04 Decker, J C Belleville, Kas
'97 Dietz, C. F Tabor, Ia
'87 Ditterbrandt, C B Summerville, Ore
'92 Dixon, Wm E Derby, Kas
'01 Dodge, Roy A 446 Brandeis Bldg Omaha, Nebr
'00 Douglas, Wm J Atkinson, Nebr
'95 Driver, F J Canada
'01 Drummer, Frida 1551 N17th st Omaha, Nebr

E

'04 Eby, C D
'04 Edwards, J A Rock Springs, Wyo
'93 Edwards, Lee W 24th and Farnam Omaha, Nebr
'82 Ellis, Geo V Salem, Ore
'01 Emerson, A G Bingham, Nebr
'03 Erickson-Hill, Christine S Council Bluffs, Ia
'14 Erskine, Earl Bradley, M. E. Hospital, Omaha, Nebr
'05 Everett, Oliver W 14th and M st Lincoln, Nebr

F

'06 Fairchild, Nora M 731 Brandeis Theater Bldg, Omaha, Nebr
'99 Finney, Harry S 202 Symes Bldg Denver, Colo
'96 Fitzsimmons, A P Manilla, Philippine Islands
'01 Fitzsimmons, S V Deceased
'02 Fitzsimmons, A W 409 Brandeis Bldg, Omaha, Nebr
'02 Fleetwood, Edward J Wakefield, Nebraska
'07 Fossler, John Jacob Millard, Nebr
'11 Frank, Lorenzo W Metropolitan Bldg, Denver, Colo
'98 Frank, W W Glenwood Springs, Colo
'08 Fricke, A. A. McDonald Bldg So. Omaha, Nebr
'97 Fry, J W Creston, Ia
'06 Fuller, John A Las Vegas, Nev
'88 Fort, H F Kimball, Nebr
'98 Fulton, H A Havelock, Nebr
'87 Frese, Louise
'98 Fitch, Libbie (See Miller) Omaha, Nebr
'96 Francis, H W Bancroft, Nebr

G

'03 Gage, Earl E Sioux Falls, S D
'97 Ganoe, J O Ogden, Ia
'05 Garland, Harle Sapulpa, Okla
'04 Gates, F V Deceased
'87 Gibbs, D C
'96 Gilbert, Geo R Brandeis Theatre Bldg, Omaha, Nebr
'98 Gillispie, Hamilton S Mapleton, Ia
'01 Gilmore, Thomas M Flora, Ore
'14 Goodnough, John Harland Rock Springs, Wyo
'90 Graham, Francis A F & M Bldg Lincoln, Nebr
'03 Graham, J R Allen, Nebr
'14 Gramlich, Ralph Clifford Immanuel Hospital, Omaha, Nebr
'15 Greenberg, Abe Wise Memorial Hospital, Omaha, Nebr
'02 Griffiths, Daniel G Lincoln, Nebr
'08 Grinnell, J B
'01 Gritzka, Christian T Talmadge, Nebr
'97 Gregg, Harry L 4401 W Madison Ave, Chicago, Ill

H

'13 Harvey, Andrew Craig, Nebr
'13 Hammitt, Walter F Garwin, Ia.
'13 Haines, Francis Edith Mary Thompson Hos, Chicago, Ill
'95 Haden, Eugene B Panora, Ia
'82 Hadley, James E Cedar Bluff, Nebr
'88 Hadley, S J Arlington, Nebr
'90 Hakson, Alfred 32 N State st, Chicago, Ill
'82 Haldeman, Frederick D Ord, Nebr
'01 Hall, B W Benson, Nebr
'01 Hall, Stacy B 526 Bee Bld, Omaha Nebr
'07 Hamill, Robert A Deceased
'14 Harms, Charles Wesley Warren M. E. Hospital, Omaha, Nebr

’02 Hanson, Frank H Magnolia, Ia
’02 Hanson, John E
’04 Hart, John F Elba, Nebr
’01 Hawthorne, R A Braddyville, Ia
’08 Hayman, E C Lincoln, Nebr
’89 Haynes, A P Deceased
’05 Heine, W Howard Hooper, Nebr
’82 Hempstead, Warner Brainard, Minn
’02 Henderson, Dora (See Mrs Fannie D Wiederanders)
’92 Henderson, Vilina Shenandoah, Ia
’08 Henney, Wm H Flags Staff, Ariz
’02 Henninger, Louis L 401 City Nat Bank Bldg, Council Bluffs, Ia
’01 Herron, F W Pender, Nebr
’95 Hick, Lawrence F Delta, Colo
’95 Hickock, Harrison S Wichita, Kas
’12 Higgins, R P Ainsley, Nebr
’96 Hinz, Alois F Deceased
’05 Holm, Adolph H Wolbach, Nebr
’08 Hompes, Joseph J Ganter Bldg Lincoln, Nebr
’92 Hostetter, Wm A 808 South 20th st Omaha, Nebr
’84 Huff, Mrs Alice E
’85 Hull, Geo M Deceased
’02 Hully, Henry D Griswold, Ia
’04 Hummer, Warren L Greenfield, Ia
’07 Hyde, John Fay 460 Brandeis Bldg Omaha, Nebr

I

’97 Ireland, Geo A Deceased
’03 Isaacs, David 816 Brandeis Bldg Omaha, Nebr
’03 Iwerson, John C Early, Sac Co, Ia

J

’85 Jackson, Andrew N Deceased
’02 James, Peter E Elkhorn, Ia
’99 James, Charles Stanton Brandeis Bldg, Omaha, Nebr
’05 Jeffers, B F St. Francis, Kans
’00 Jefferson, Alfred 440 Brandeis Bldg, Omaha, Nebr
’03 Jensen, Frank Newman Grove, Nebr
’97 Jensen, Johann H Dayton, Ore
’03 Jensen, J P Plainview, Nebr
’90 Johnson, Andrew 202 Brown Blk Omaha, Nebr
’94 Johnson, Frank W Fullerton, Nebr
’94 Johnston, James Alba Byron, Ill
’95 Jones I Diller Murdock, Nebr
’01 Jones, J F Linn, Mo
’02 Jones, Wm Y Wynot, Nebr
’98 Joyce, John B Masonville, Ia
’15 Johnson, O D
’95 Judkins, Dora M, Davis Tecumseh, Nebr
’03 Job, Clatilla (Mrs Morris Ryerson) Kent, Nebr

K

’04 Karrar, Fred W Benedict, Nebr
’97 Kelley, John F Holbow, Hainan, China
’05 Kennedy, Charles R 406 Brandeis Bldg, Omaha, Nebr
’02 Kennedy, Rob Roy Minneapolis, Minn
’94 Kenner, Wm C Utica, Nebr
’82 Keller, Alvin H Sioux Falls, S D
’04 Kerr, Johnston H Akron, Ia
’08 Kerr, T J North Platte, Nebr
’15 Kerr, Robt. H
’02 Kerr, William Randolph, Ia
’02 Keyes, Edward C Gretna, Nebr
’15 Keegan, John J Uni. of Minnesota Minneapolis Minn
’14 King, Dexter D Waco, Nebr
’04 Knode, Archibald R 409 Omaha Nat Bank Bldg, Omaha, Nebr
’98 Knode, R C Gering, Nebr
’97 Koerber, Gustav A Russell, Kas
’85 Knowles, S H Portland, Ore
’96 Koerber, Paul E Yutan, Nebr
’05 Kohout, Joseph A Cuba, Kas
’14 Kotlar, Frank John M E Hospital, Des Moines, Ia
’97 Kraft, F E 540 North 15th st, Lincoln, Nebr
’02 Kruse, Frederick W Avoca, Nebr
’03 Kuhl, August B Davenport, Ia

L

’05 Lane, A E Laramie, Wyo
’94 Lauritzen, N P Sandusky, Ohio
’05 Lauzer, E S Rock Springs, Wyo
’13 Laughlin, Jos W Elm Creek, Nebr
’90 Lavender, W R 451 Brandeis Bldg Omaha, Nebr
’96 Lawrie, Wm H Columbia, Mo
’96 Lawson, Thos J Long Pine, Nebr
’93 Leard, Samuel E Livingstone, Mont
’02 Lee, Daniel F Deceased
’93 Leeper, John F Manila, P I
’01 Leisenring, L M Placerville, Calif
’83 Leisenring, Henry G San Diego, Calif
’03 LeMar, Clair L Osceola, Nebr
’02 LeMar, Fred A Humphrey, Nebr
’98 Lemere, Henry B 400 Brandeis Theatre, Omaha, Nebr
’95 LePard, Joseph S Pot Luck, Idaho
’96 Lilledahl, Frank E Pierce, Nebr

'08 Leiber, Chas 24th and Lake st Omaha, Nebr
'01 Lindquest, A B 414 Brandeis Bldg Omaha, Nebr
'93 Linley, Hubbard 603 Commercial st, Atchison, Kas
'98 Livingston, John S Plattsmouth, Nebr
'85 Livingston, Theodore P Plattsmouth, Nebr
'88 Livingston, R R Deceased
'83 Lloyd, G F Deceased
'01 Loechder, Wm Benson, Nebr
'95 Lucae, Voorhes North Platte, Nebr
'92 Luck, Wm A Denver, Colo
'03 Lyman, Rufus A University of Nebr, Lincoln, Nebr

M

'02 Mantor, Hugh E Sidney, Febr
'00 Margaret, O H Papillion, Nebr
'95 Maloney, Chas O Adair, Ia
'09 Mantor, Harry L 214 Richards Blk Lincoln, Nebr
'11 Martin, Roy D Glenville, Nebr
'83 Markley, Lemon R Bellingham, Wash
'03 Martin, J W S Ong, Nebr
'01 Martin, Wm Ross 724 Greene Ave Brooklyn, N Y
'05 Mason, C W Chiengmai, Siam, (via Moulmain, Burmah)
'15 Mason, Elzabeth Methodist Hosp Omaha, Nebr
'12 Maxwell, J T Savannah, Ga.
'89 Mason, W T Deceased
'96 Mead, Mrs Maud Lawton, Okla
'04 Melsenbach, Jacob E Staplehurst, Nebr
'98 Mercer, Nelson S 222 Paxton Blk Omaha, Nebr
'05 Merkel, A E Berwick, Ia
'04 Merritt, Edwin A Council Bluffs, Ia
'92 Metz, Phillip H Humphrey, Nebr
'15 Meyer, Carl A Wise Memorial Hosp Omaha, Nebr
'08 Miller, Brownlow R Tabor, Ia
'98 Miller, Mrs Libbie Fitch 4101 No 23rd st, Omaha, Nebr
'88 Miller, Joseph H Surprise, Nebr
'05 Miller, Clinton J Ord, Nebr
'10 Miller, Robert Glenn Washington, D C
'91 Mitchell, Mrs Adda Bowerman 625 8th Ave., Council Bluffs, Ia
'12 Moddie, W C Jefferson, S D
'94 Mogridge, George Glenwood, Ia
'97 Montgomery, Wm P Beartice, Nebr
'15 Moser, R A Clarkson Hosp Omaha, Nebr
'82 Monteith, Robert
'14 Moon, Charles Franklin Reliance, Wyo
'08 Moore J C jr 429 Brandeis Bldg Omaha, Nebr
'02 Moore, Miles S Gothenburg, Nebr
'95 Morrill, Wm L Sterling, Nebr
'05 Morris, G H Creston, Nebr
'05 Morrison, Geo A Bradshaw, Nebr
'03 Morison, C C 587 Brandeis Bldg Omaha, Nebr
'08 Morrow, F H Columbus, Nebr
'02 Morsman, C F Hibbling, Minn
'06 Morsman, Leslie W 342 Brandeis Theatre Bldg, Omaha, Nebr
'97 Mowrer, Wm P Perry, Ia
'14 Moyer, Torrence Calvin Wise Hospital, Omaha, Nebr
'08 Mulliken, Doyle B Munden, Kas
'94 Mueller, F Martin Lawrenceburg, Ind
'91 Mullins, C L Broken Bow, Nebr
'98 Mullins, R B Browen Bow, Nebr
'95 Munson, Herbert 2522 North 31st St. Omaha, Nebr
'98 Murdock, Russell J Blair, Nebr
'09 Myers, Benj L Ketchican, Alaska
'04 McArthur, Hector J Hanna, Wyo
'95 McCarl, R A
'02 McClymonds, Robert C Walton, Kas
'91 McConnell, C W Cranford, N J
'05 McDonald, G E Superior, Wyo
'02 McDowell, Milton Berlin Chadron, Nebraska
'87 McGavern, H S San Francisco, Calif
'97 McGirr, John I Beatrice, Nebr
'09 McIntyre, L R Deceased
'94 McKeeby, Fred E Pueblo, Colo
'98 McMahan, D B New Hamilton Omaha, Nebr

N

'98 Neal, Florence Meridian, Idaho
'03 Neal, Halbert F Meridian, Idaho
'09 Nelson, Cal D Platte Center, Nebr
'04 Nelson, Neil D Shoshoni, Wyo
'10 Newman M H Cody, Nebr
'00 Neilsen, Morris Blair, Nebr
'03 Neilsen, Marie A Blair, Nebr
'01 Nilsson, John R 1001 W O W Bldg, Omaha, Nebr
'88 Noon, J E Deceased
'82 Norris, Urban H Kanoby, Utah
'86 Norrish, James Bogue, Kas
'87 Norwood, Paul New York City
'01 Nye, M A Weston, Nebr

O

'10 Olsson, Justus Edgar Lexington, Nebr
'15 Orvis. Harriet Mary Thompson Hosp Chicago, Ill
'03 Osborn, F E McAllen, Texas
'96 O'Toole, Thos J Eagle Grove, Ia
'00 Overgaard, Anders P Fremont, Nebr

P

'07 Palmer, Claude Bridgeport, Nebr
'98 Pampel, Byron L Livingston, Mont
'04 Panter, Robert C Dorchester, Nebr
'86 Panter, Samuel G Ohiowa, Nebr
'04 Patton, James McD 507 Brandeis Bldg, Omaha, Nebr
'05 Pederson, Hans C Farwell, Nebr
'04 Pederson, P M Dannebrog, Nebr
'04 Penner, Henry G Plymouth, Nebr
'04 Penner, Louis E Beatrice, Nebr
'01 Perice, Byron I Moorcroft, Wyo
'02 Peters, John Arthur Springfield, Nebr
'99 Peterson, Alfred O 202 Ramge Bldg, Omaha, Nebr
'04 Petr, Francis 1263 So 16th st Omaha, Nebr.
'98 Phillips, Frederick A 215 Walker Bldg, Seattle, Wash
'14 Pinckney, Charles Edward Immanuel Hospital, Omaha, Nebr
'98 Pinkerton, Wm J Bostwick, Nebr
'03 Platt, O D St. Maries, Idaho
'09 Platz, Ada Beatrice, Nebr
'98 Porter, Elmer R 406 Brandeis Bldg, Omaha, Nebr
'05 Potter, Geo B Shelby, Nebr
'07 Potts, John Beckman 567 Brandeis Bldg, Omaha, Nebr
'02 Poynter, Chas W M University of Nebraska, Omaha, Nebr
'13 Powell, Ward H Minden, Nebr
'08 Premer, James F Haigler, Nebr
'04 Prest, John E Derring, Nebr
'00 Preston, Sylvester A Fremont, Nebr
'08 Prichard, G W Essex, Ia
'95 Pringle, J S Casper, Wyo
'98 Pugh, Geo F White River, S D
'97 Putnam, Edmund D Sioux Falls, S D
'05 Polevay, Nina D Moscow, Russia
'12 Phillips, Clark C Dixon, Nebr

Q

'96 Quincy, Mary A Ashland, Nebr

R

'02 Rathbun, Grove H Fremont, Nebr
'10 Reed, Roland Ray McCook, Nebr
'01 Reichenbach, H A Council Bluffs, Ia
'02 Reed, David J Holbrook, Nebr
'02 Reed, John D Pilger, Nebr
'08 Redfield, J B North Platte Nebr
'95 Reiley, Wm S Red Oak, Ia
'10 Remy, Charles E Ainsworth, Nebr
'03 Rice, Mrs Rose H Council Bluffs, Ia
'93 Rich, Max Grand Island, Nebr
'90 Richardson, Louis Waterloo, Nebr
'84 Ricketts, Matthew O 368½ Edmond St, St Joseph, Mo
'01 Robertson, Andrew A Crescent, Ia
'96 Robertson, Edwin N Concordia, Kas
'96 Robinson, Reuben Deceased
'84 Roe, John W
'92 Roeder, George Grand Island, Nebr
'00 Rohlf, Edward L Waterloo, Ia
'03 Root, Chas H Norfolk, Nebr
'97 Rosenburg, Mary Elizabeth
'98 Ross, C H 4512 N 27th St., Omaha, Nebr
'08 Rubendall, C 469 Brandeis Bldg Omaha, Nebr
'93 Rugg, Frederick C
'05 Rufmery, Arthur C Mason City, Ia
'02 Rundstrom, David A Wellfleet, Nebr
'12 Rush, W A Malvern, Ia

S

'04 Sample, T E 408 First Nat Bank Bldg, Omaha, Nebr
'12 Sellon, Geo I Broken Bow, Nebr
'94 Sandbat, Andrew G 728 So Union Avenue, McKeesport, Pa
'09 Sayer, Joseph H White Salmon, Wash
'14 Scholten, William St Elizabeth Hospital, Lincoln, Nebr
'10 Scott, Frank Waldo Lodge Pole, Nebr
'82 Search, James W Brooklyn, N Y
'83 Shaw, James Boston, Mass
'01 Shockey, Geo C Melrose Park, Ill
'08 Sidwell, L T Glenwood, Ia
'00 Simpson, Bryant Robert Adams, Nebr
'08 Skeen, E D Gary, Ind
'03 Smersh, Otto G
'05 Smith, Eldon S Burwell, Nebr
'01 Smith, Eugene H 320 Eccles Bldg, Ogden, Utah
'03 Smith, James W B Albion, Nebr
'98 Smith, Seymour H 1025 So 10th St Omaha, Nebr

'95 Somerville, J E
'96 Spates, Chas B 328 Century Bldg Des Moines, Ia
'86 Smith, Wm H 202½ So Broadway, Los Angeles, Calif
'03 Spear, George E 847 South St, Lincoln, Nebr
'99 Spencer, Noel W Sioux Falls, S D
'09 Stansburg, Eugene M Vermillion S D
'10 Stearns, Robert James Logan, Ia
'13 Stastny, Olga F 2231 So 16th St, Omaha, Nebr
'07 Stein, Charles Glasco, Kas
'96 Stephenson, Andrew V Crawford, Nebr
'95 Stevenson, Chas E Sheridan, Wyo
'10 Stewart, Charles Roy Deceased
'07 Stoakes, Charles Stewart Battle Creek, Ia
'93 Stockdale, Frank Coal City, Ill
'99 Stokes, A C 503 Brandeis Bldg Omaha, Nebr
'07 Stokes, Guy Percival Fullerton, ND
'92 Stone, Ulric D
'99 Strader, Geo L Cheyenne, Wyo
'91 Straight, John W Hastings, Nebr
'96 Strough, Geo W Hickman, Nebr
'04 Stuart, Albert B Council Bluffs, Ia
'03 Stuckey, Royal S Maywood, Nebr
'09 Sturdevant, LaZelle B Lincoln, Nebr
'08 Sullivan, Geo W St Edwards, Nebr
'95 Summer, Ella P Bloomington, Nebr
'96 Swanson, Carl L F 429 Brandeis Bldg, Omaha, Nebr
'96 Sward, E J C Little Bldg, Lincoln, Nebr
'10 Swenson, Samuel A Oakland, Nebr
'05 Swoboda, Franz 1511 Williams St Omaha, Nebr
'96 Swoboda, Louis 301 Paxton Blk, Omaha, Nebr
'98 Smith, David J Osceola, Nebr
'11 Sward, Martin P Glenwood, Ia

T

'12 Taylor, J D St Lukes Hospital Denver, Colo
'88 Taggert, Edw J Bremerton, Wash
'97 Talbott, Willis E Broken Bow, Nebr
'08 Taylor, Harry A University Place, Nebr
'11 Taylor, Willis H 446 Brandeis Bldg, Omaha, Nebr
'94 Thieman, Wm L Deceased
'96 Thomas, Harry G Victor, Colo
'08 Taylor, S L Des Moines. Ia
'08 Thompson, I L Beemer, Nebr
'10 Throckmorton, Jeanette Chariton, Ia
'00 Thulin, D H 578 So Broadway, Denver, Colo
'95 Tinley, Mary L Council Bluffs, Ia
'02 Tinley, Matthew A Council Bluffs, Ia
'08 Tomlinson, Chas C Wakefield, Nebr
'02 Tornholm, Frank Wahoo, Nebr
'01 Tower, Amosa M Lodi, Calif
'03 Townsend, Francis E Nisland, S D
'04 Trostler, Isadore S 615 Garfield Ave, Chicago, Ill
'67 Truax, J P Grant's Pass, Ore
'03 Truelson, Thos Tampa, Fla
'11 Tucker, Mary W (See Mrs A W Ward)
'12 Tucker, J C Long Pine, Nebr

U

'04 Underwood, Robert B Memphis, Tenn
'99 Updegraff, Elmer J 454 Brandeis Bldg, Omaha, Nebr

V

'88 Van Camp, Lee B 301 Paxton Blk Omaha, Nebr
'03 Vance, Verne V Peru, Nebr
'02 Van Fleet, Edward A 210 McCague Blk, Omaha, Nebr
'96 Verley, Ernest LeRoy Nitteberg, S D

W

'10 Waddell, James Clyde Pawnee City, Nebr
'05 Wainwright, Cornelius I Deceased
'01 Wainwright, J S Giltner, Nebr
'08 Walker, Geo H Lincoln, Nebr
'03 Walker, Joseph G Iola, Kans
'11 Ward, Archie W Hampton. Nebr
'11 Ward, Mary Tucker Crete, Nebr
'07 Ware, Edward Miller DuBois, Nebr
'03 Warner, H P
'07 Warner, Merle Frank Council Bluffs, Ia
'85 Waterman, E Leo St Francis, Kas
'83 Webb, Chas F Republic, Wash
'85 Webb, Walter Q Granite Block, Spokane, Wash
'08 Wekesser, Henry P 1105 O St, Lincoln, Nebr
'13 Westervelt, A E 3058 Mason St, Omaha, Nebr
'01 Wells, Francis A Axtell, Nebr
'99 Westerhoff, John G W Carleton, Nebr

'98 Weymuller, E A Cumberland, Wyo
'93 Wheeler, Henry C Deceased
'03 Wherry, Wm P 603 Brandeis Theatre Bldg, Omaha, Nebr
'91 White, W J Deceased
'02 Wiederanders Mrs Fannie D
'86 Wiese, H G Percival, Ia
'05 Wigton, H A 1820 Vinton St Omaha, Nebr
'94 Williams, David Logan, Ia
'83 Williams, Josephine Hood River, Ore
'14 Williams, Mildred Carnahan Woman's Hospital, Boston, Mass
'07 Willis, Chas A Waltham, Mass
'06 Wills, Claude L Anselmo, Nebr
'01 Wilmoth, Wm L Burchard, Nebr
'95 Wilson, Edwin M Twin Bridges, Mont
'93 Wiltse, Edward W Modale, Ia
'85 Wirth, Edward Deceased
'92 Wisner, Wm O Empire State Bldg, Spokane, Wash
'00 Witter, Roy V Elizabeth, Colo
'07 Woodard, J M Aurora, Nebr
'98 Wright, Ross E Loveland, Colo
'07 Wyatt, M B Manning, Ia
'09 Wyatt, O W Manning, Ia
'11 Wildish, R M Worthing, S D

Y

'89 Yates, Geo A Wooster, Ohio
'15 Young, A J Swedish Mission Hosp Omaha, Nebr
'14 Young, Blaine Augustus M E Hospital, Omaha, Nebr
'84 Youngman, A C
'97 Yule, S A Deceased

Z

'91 Ziegler, W G Deceased

NOTE—Please notify Secretary of errors and omissions.

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